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ECONOMIC POLICY, ORGANIZATION, AND MANAGEMENT

TASKS OF MATHEMATICAL ECONOMICS INSTITUTE DEFINED

Progress in Conducting, Organizing Research

Moscow EKONOMIKA I MATEMATICHESKIYE METODY in Russian No 2, Mar-Apr 80
pp 217-220

[Text] The work of TsEMI [Central Mathematical Economics Institute] was discussed in a session of the Presidium of the USSR Academy of Sciences on 14 June 1979.*

The decree of the Presidium of the USSR Academy of Sciences entitled "On the Activity of the Central Mathematical Economics Institute of the USSR Academy of Sciences in Conducting and Organizing Scientific Research in the 1970-1978 Period" notes that the institute, guided by the tasks set forth by the 24th and 25th CPSU congresses and plenums of the CPSU Central Committee on improvement of management of the economy and on stepping up intensification of social production, has made definite progress in developing and intensifying mathematical economics as a field of economic science.

The institute has made a substantial contribution to development of a new field of economic science--mathematical-economic modeling--and has been vigorous in helping to build the procedural foundations for effective use of electronic computers and management of the economy as well as the methods of systems analysis and for improvement of the economic mechanism of managing the planned economy. The institute has conducted research on the following: the theory of optimal functioning of the socialist economy; the economic and social problems of the long-range development of the USSR economy; theoretical and methodological problems of long-range economic planning and of creating the ASPR [computerized system of planning computations]; methodological substantiation and experimental building of systems of models for optimum planning of the economy, sectors and multisector complexes. Work has also been done to develop the methodology and build systems of long-range and medium-term models for national economic forecasting and planning, some of which have gone through experimental verification.

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* EKONOMIKA I MATEMATICHESKIYE METODY, No 6, 1979, p 1228.

In recent years TsEMI has also published important works such as "Problemy optimal'nogo funktsionirovaniya sotsialisticheskoy ekonomiki" [Problems of the Optimum Functioning of a Socialist Economy], "Ekonomicheskiye zakony sotsializma i optimal'nyye resheniya" [The Economic Laws of Socialism and Optimum Decisions], "Kompleksnoye narodnokhozyaystvennoye planirovaniye" [Integrated National Economic Planning], "Optimizatsiya ekonomiki" [Optimalization of the Economy], "Prognozirovaniye rosta sotsialisticheskoy ekonomiki" [Forecasting the Growth of a Socialist Economy], "Modelirovaniye narodnokhozyaystvennykh protsessov" [Building Models of National Economic Processes], "Sistema modeley optimal'nogo planirovaniya" [A System of Optimum Planning Models], "Ekonomicheskiye problemy prirodopol'zovaniya" [The Economic Problems of Conservation of Natural Resources], "Osnovnyye metodicheskiye polozheniya optimizatsii razvitiya i razmeshcheniya proizvodstva" [Basic Procedural Principles for Optimizing the Development and Location of Production], "Potrebnosti, dokhody, potrebleniye. Metodologiya analiza i prognozirovaniya narodnogo blagosostoyaniya" [Needs, Income, Consumption. The Methodology of Analyzing and Forecasting the Prosperity of the People], etc.

The institute made a sound contribution to drafting the Comprehensive Program of Scientific-Technical Progress and Its Socioeconomic Consequences for the Future, especially in substantiation of the socioeconomic tasks of the long-term period, the growth rate and the structure of social production, and its efficiency.

The institute initiated the preparation and development of a number of urgent projects in applied research. Various models of planning and management of enterprises and industries in the context of ASU [computerized management system] went through experimental verification and were turned over to planning and economic agencies for practical use. With methods supervision and the direct participation of the institute ASU's were set up in a number of large enterprises, ministries and departments. Together with other organizations the institute developed models for optimization of the production program and capital investments, the location of production, optimum utilization of productive resources, and optimization of relations between suppliers and consumers for the chemical industry, the cement industry, the coal mining industry and other industries. They were used as the basis for the preplanning optimization computations, in which the institute participated, for a number of branches and subbranches of material production and also to optimize development of the fuel-and-power and petrochemical complexes.

The institute prepared the "Recommendations on Methods of Drafting Comprehensive National Economic Programs," which were approved by the Council for Study of Major Social and Economic Problems of USSR Gosplan. The institute also participated in devising a number of specific methods: for determination of the efficiency of utilization of new technology, inventions and production innovations in the national economy, for economic assessment of mineral deposits, for computation of the optimum sequence for compiling price lists, and a number of others.

Steps have been taken in recent years to improve the planning of scientific research, and the graduate study program has been straightened out.

But there are still essential shortcomings and oversights in the work of the institute. Work on the most urgent national economic problems is still going slowly at the present time. Little attention is paid in the institute's theoretical and applied research to study of real strategies for the transition of the socialist economy from the extensive to predominantly intensive type of reproduction, for speeding up scientific-technical progress and for raising production efficiency.

There has been a lag in development of the methodological foundations for applying the methods and models of mathematical economics in planning and management and for optimum utilization of all capabilities for expanded socialist reproduction. A number of the materials prepared by the institute need more thorough substantiation from the standpoint of political economy.

Research on the problems of the optimum functioning of the economy has not always been vigorous and purposive. Sufficient attention has not been paid to revealing the quantitative determinacy of socially necessary expenditures, to social utility and to devising methods of measuring it.

The development of the methods of national economic forecasts and practical projects in the field of forecasting are still not comprehensive in nature. Research on the problems of long-term forecasting still does not have a sufficiently complete basis in terms of theory and methods. Even now the difficulties have not been overcome in making scientific-technical forecasts consistent with socioeconomic forecasts. Research on setting up information systems has been disconnected.

The institute's printed output includes publications which are poor and have been rightly criticized in scholarly journals.

Certain subdivisions of the institute have still not turned toward solving the main problems they have been set. The institute's staff does not have enough researchers with basic education and political economy, especially those with the highest qualifications who have mastered the methods of mathematical economics. Some of the staff members of the institute do not have a sufficiently complete mastery of the knowledge of real national economic problems.

Attention is also called to the fact that many of the mathematical-economic methods and models developed and experimentally tested by the institute are still not being sufficiently used in the practice of planning and managing the economy.

The Presidium of the USSR Academy of Sciences has officially approved as a whole the results of the scientific research done by the Central Mathematical Economics Institute of the USSR Academy of Sciences between 1970 and 1978.

It declared that the efforts of the institute's staff should be concentrated on research on the problems of planned management of the economy and on raising its efficiency as posed in the decisions of the 24th and 25th CPSU congresses, subsequent plenums of the CPSU Central Committee, and the writings and speeches of Comrade L. I. Brezhnev, general secretary of the CPSU Central Committee and chairman of the Presidium of the USSR Supreme Soviet

A priority task of the institute is to achieve a further rise in the theoretical level and practical orientation of its research and to prepare recommendations with respect to scientific methods of improving the planning and management of the economy and its individual entities on the basis of extensive use of the methods of mathematical economics and electronic computers. It accordingly needs to achieve further intensification and greater effectiveness of research in the following fields:

i. development of the methodology of long-range and medium-term forecasting of economic development, including substantiation of growth rates and structure of social production and development of the most important intersector national economic complexes;

ii. creation of a methodology for integrated national economic planning and the building of systems of mathematical-economic models of the economic development of the country as a whole, of multisector complexes, of industries, of union republics and of economic regions, and also of incorporating them into the ASPR, including solving the problems of correlating the mathematical-economic models with the flow chart for compilation of national economic plans and for linking the various sections of plans;

iii. development of the theoretical foundations of systems for management of sectors and industries, associations and enterprises using computer equipment in the context of improvement of the economic mechanism and of organizational structures;

iv. study of the problems of improving the planned economic mechanism for management of the socialist economy, including the problems of planned pricing, economic valuation of national economic resources, optimalization of natural resource conservation, and organic combination of the physical proportions and value proportions of the plan;

v. development of new methods of building models of economic processes and their software, including the creation of algorithms and packages of applied programs for linear, nonlinear and discrete optimization and for solving statistical and stochastic problems.

The Presidium of the USSR Academy of Sciences has ordered the institute to take an active part in preparing materials for the 11th Five-Year Plan for Development of the National Economy and in compiling the long-range plan for the country's socioeconomic development; to ensure further development and comprehensiveness of research on the political-economic foundations of the system of optimum functioning of the socialist economy, comprehensive mathematical-economic models of planned management of the economy, work on the problems of the methodology of building computerized management systems, to achieve a further rise in the level of research on scientific methods related to the Comprehensive Program of Scientific-Technical Progress and Its Socioeconomic Consequences for the Future; to take steps toward a further rise in the scientific-theoretical level and practical importance of the institute's publications and recommendations, and to see that these problems are treated more comprehensively, concretely and thoroughly.

The Presidium of the USSR Academy of Sciences has committed the institute's administration to the following:

i. in order to increase the effectiveness and practical significance of the results of scientific research it is to take steps to strengthen relations with USSR Gosplan, ministries, departments, associations (enterprises) and with subdivisions of the academies of sciences of the union republics working to develop mathematical-economic models of planning and management;

ii. to be more persistent in carrying out measures to introduce the methods and models of mathematical economics into the practice of planning and managing the national economy and to prepare specific recommendations in this area;

iii. to improve the institute's organizational structure and its activity as an organizer of research with a view to concentrating energies along the main lines of research and to improving the planning of research;

iv. to take effective measures to increase the number of specialists with education in political economy; to fill vacancies in specialized graduate study primarily with persons who have education in political economy and mathematical economics.

The decree recommends that the administration and academic council of the institute take a more exacting stance in evaluating the creative productivity of scientists at the time when they are reappointed to a new term and in certifying scientific-technical personnel.

The Presidium of the USSR Academy of Sciences has ordered the institute to prepare recommendations on raising the scientific-theoretical level and practical orientation of articles in the journal EKONOMIKA I MATEMATICHESKIYE METODY.

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Institutes' Academic Council Session

Moscow EKONOMIKA I MATEMATICHESKIYE METODY in Russian No 2, Mar-Apr 80
pp 392-395

[Text] An expanded session of the academic council devoted to the institute's tasks arising out of the decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality," dated 12 July 1979, and the decree of the Presidium of the USSR Academy of Sciences "On the Activity of the Central Mathematical Economics Institute of the USSR Academy of Sciences in Conducting and Organizing Scientific Research in the 1970-1978 Period," dated 14 June 1979, was held 27 September 1979.

N. P. Fedorenko, member of the academy and director of TsEMI, presented the report. He emphasized that the decree of the CPSU Central Committee and USSR Council of Ministers opens up a new phase in development of the system of management of the economy, a phase characterized by a more complete and organic combination and real utilization of the potential of the contemporary scientific-technical revolution and the advantages of socialist organization of social production.

Identifying and activating the truly colossal internal potential of our economy depends decisively on the system for management of the economy, on the effectiveness of the economic mechanism. The present stage is distinguished by a number of peculiarities giving rise both to new elements in the system for management of the economy and also different relationships in that system. Intensifying production means that to a large extent a new approach is being taken to planning and managing production. The decree of the Presidium of the USSR Academy of Sciences correctly points out that little attention has been paid in the institute's work to research on real strategies of the transition from the extensive to the intensive type of reproduction.

Today's strategy is the path outlined by the party for raising the efficiency and quality of performance in all units of the national economy. The main directions of the movement along that path, directions which are interrelated, are as follows: 1) scientific-technical progress; 2) improvement of planning and intensifying the influence of the economic mechanism on increasing the efficiency and quality of performance, i.e., improvement of the system of planning and management of the national economy and of its individual components. To a considerable extent the former is a derivative of the latter. L. I. Brezhnev spoke about this at the 25th CPSU Congress and the November Plenum of the CPSU Central Committee in 1978.

Scientists of the USSR Academy of Sciences (including TsEMI) participated directly in drafting many recommendations for improvement of basic elements of the management system: centralized planning, the economic mechanism, the organizational structure of management, and the data processing capability to support planning and management.

The decree of the party and government outlines specific measures to improve these components of the system of management; they are aimed primarily at an integrated solution to economic, scientific-technical and social problems.

The decree devotes a great deal of space to the Academy of Sciences, whose responsibility it is, jointly with the USSR State Committee for Science and Technology, to draft programs for solving the most important scientific-technical problems and for integrated utilization of natural resources. The institute is to participate in that effort.

In order to enhance the role of the 5-year plan as the principal form for planning the country's economic and social development the decree calls for a substantial rise in the level of internal consistency of plans on the basis of an elaborate system of balances of physical and labor resources, production capacities, a financial balance and a balance of personal income and expenditures for each year of the 5-year period, which in turn necessitates extensive use and further improvement of mathematical-economic models.

The physical and financial reserves to meet the needs of production, capital construction and scientific research are to be defined in 5-year plans. The setting of stable economic norms will help to enhance the role of 5-year plans. TsEMI was an advocate of this idea and of carrying it out in the Glavmosavtotrans [Moscow City Main Administration of Motor Vehicle Transport] experiment. It is already clear that the time has come to put an end to planning on the basis of what has been achieved. Norms make it possible to unify the cost-accounting (khozraschet) interests of enterprises with the assignments of the state plan.

Carrying out the decree also necessitates expansion and strengthening of the data processing capability for planning and management of the national economy. The economic decisionmaking process must have good up-to-date information, and TsEMI is being given an important role in this area.

But, of course, improvement of the planning and management of the economy does not end with the adoption and performance of the measures which have been outlined. A large "package" of normative and methods documents both interdepartmental and departmental need to be developed in order to put the new procedure for planning and conduct of economic activity in concrete terms. The institute has been called upon to take an active part in performing these tasks. In addition, methods have to be devised for the following: the drafting of special-purpose programs; valuation of land taken out of agricultural production; planning the operation of enterprises (since now annual planning begins "from the bottom," from the enterprises), etc. As the experience of associations, sectors and industries, and intersector and regional-industrial complexes is gathered under the new conditions of planning and economic activity the results of the operation of the economy need to be thoroughly analyzed, new trends in economic development must be identified, what has been achieved needs to be summarized, i.e., there is a need for direct participation in carrying out the decree of the CPSU Central Committee and USSR Council of Ministers dated 12 July 1979. Relations need to be strengthened between the economists in all specialized fields and also with law professors, sociologists and psychologists. All this must be reflected in scientific research plans.

Economists need to organize theoretical and applied research on preparing the next stage in improvement of the socialist economic mechanism. Some groundwork has been laid along these lines, but there is a broad field here for creative exploration, analysis and critical examination of methods for improvement of the conduct of economic activity in the future.

Projects related to development of the theory and methodology of planning and management of the economy need to be raised to a new level. Inclusion of the comprehensive program of scientific-technical progress in the system of state plans of economic and social development necessitates a sound summarization of the theoretical and methodological foundations of national economic forecasting and the drafting of scientific-technical programs.

In the field of long-range planning methods need to be worked out for shaping special-purpose standards of socioeconomic development, the methodology of planning with special-purpose programs, the principles of determining the most effective ways of achieving the final results of the national economy, the methodology of interrelated planning of physical and financial proportions, and the method of keeping them in a state of equilibrium.

Research on the fundamental problem of the national economic criterion of optimality, above all of the interaction between economic and social factors, is becoming especially urgent. Solving this problem presupposes a comprehensive analysis of the highly ramified system of goals of socialist society. The Presidium of the USSR Academy of Sciences has pointed out that TsEMI is lagging in working out the methods and models of optimum utilization of all the potential for expanded reproduction. It is important to strengthen the contingent of researchers who have education in political economy and who have mastered the methods of mathematical economics. TsEMI must pay more attention to discovering the quantitative determinacy of socially necessary expenditures and social utility and to development of methods of measuring it.

Introduction of the ASPR into planning practice calls for concentration of efforts on experimental development of a system of models of national economic planning oriented toward optimization of planning decisions, toward faster application of the scientific spadework that exists in this field and also in the field of setting up information systems.

Theoretical and methodological research (using the methods of stochastic modelbuilding) is becoming urgent in the sphere of the planning of national economic reserves of products, production capacities and financial resources.

It will be important, though also very complicated, to develop the theory and methodology of planning and utilizing the highly elaborate system of national economic planning norms, including planned prices and rate schedules.

N. P. Fedorenko, member of the academy, examined the present state and prospects of research being done by the staff of TsEMI to lay the foundations of optimum planning and management of the national economy and of its individual components, above all in the field of improving the methodology of centralized planning, the economic mechanism of the economy, optimalization of the organizational structures of management, creation of data processing and computer systems, and their software and hardware. Having analyzed in detail the specific tasks confronting the scientists of the institute, the speaker emphasized that the principal task is the same task that faces the entire national economy--raising quality and efficiency. There are various ways of performing this task: by raising the scientific and theoretical level of exploration, by strengthening relations with practice, by seeing that experiments are organized in a more orderly fashion, by establishing communication with other scientific organizations, by strengthening work discipline, and by improving ideological training and the assignment of personnel.

A. I. Anchishkin, corresponding member of the USSR Academy of Sciences (TsEMI), noted the great variety and complexity of the tasks treated in the report. He calls for the theoretical problems to be taken up from the standpoint of economic reality. Qualitative shifts are taking place in the national economy, much is changing, and only if economic reality is taken into account can one understand the critical nature of certain processes and build models of major decisions. Unfortunately, people often want a 1-day hasty answer, but the turn should be made toward the entire context and diversity of real processes, and the theoretical constructs should be checked against them. It is necessary to find the golden means--unity between theoretical and applied research. P. N. Fedoseyev, member of the academy, called for the same thing in the Presidium of the USSR Academy of Sciences. This will make it possible to perform the tasks that arise out of the decree of the CPSU Central Committee and USSR Council of Ministers adopted 12 July 1979.

A. I. Anchishkin paid particular attention to development of the methods of national economic forecasting. It is necessary to work on these methods and theoretical generalizations which can be put to practical use, and comparison of the results obtained with reality will make it possible to evaluate how correct are the computations of the scientists. We frequently have occasion to see that new processes have been inappropriately reflected in theoretical and methodological approaches. However difficult this may be, the transition must necessarily be made to the short-term forecast. Special preparations should be made for performing this task. It is necessary to understand, to know and to describe real processes in the domains of prices, income, financial operations, subsidies, and so on, including those which may take place in the 11th Five-Year Plan.

E. F. Baranov (TsEMI) noted that the report had examined in detail the problems confronting the institute in the light of the decision of the CPSU Central Committee and USSR Council of Ministers dated 12 July 1979 and the decree of the Presidium of the USSR Academy of Sciences on TsEMI's activity in conducting and organizing scientific research. It is gratifying that the institute's work as a whole has been judged constructive in the session of the Presidium and has been approved in the statements of a number of members of the academy and responsible officials of various departments. But today we need to think about the upcoming tasks, above all the remaining work on the draft of the institute's research plan for the coming 5-year period.

Much remains to be done in connection with the intended introduction of the ASPR in the 11th Five-Year Plan. There is a need to intensify the institute's cooperation with the Main Computer Center of USSR Gosplan. Experience has shown that a concerted effort yields real results.

TsEMI achieves its greatest benefit when it organically combines a good level of theoretical development, a thorough knowledge of reality and effective utilization of computers. Detachment of any one of these parts results either in scholasticism or formalism or manifestly pragmatic solutions. Taking that as his point of departure, E. F. Baranov pointed in particular to the need for a substantial expansion of efforts related to the information support of research based on the use of computers.

The decree of the CPSU Central Committee and USSR Council of Ministers dated 12 July 1979, which, N. Ya. Petryakov (TsEMI) emphasized, is an important historical document, and evokes in scientists a feeling of profound satisfaction. The decree has reflected the recommendations of many economic scientists. They are now taking an active part in drafting the normative documents to implement the decree.

But we should also think about further scientific spadework in the development of economic theory. N. Ya. Petryakov recalled that during the recent discussion of the problem of the national economic criterion of optimality its connection with national economic planning was for the first time examined with sufficient fullness, and he expressed the conviction that it is along this line that research should develop in this important field. As the problems of perfecting organizational structures are studied, they need to be examined together with the functional mechanism. A new approach is needed to the serious problem of combining nonfinancial and financial incentives, since nonfinancial incentives--job satisfaction, intellectual needs, and so on--are taking on ever greater importance.

N. Ya. Petryakov noted that certain theoretical work done by TsEMI which not so long ago seemed excessively abstract--in particular, the work on optimum planning prices--has found its way into practice: the institute participated in the specific work of developing price lists for ferrous metals. Proposals on internal consistency, on the principles of product distribution, etc., may find application in economic practice.

In the discussion of the report the following staff members of TsEMI also spoke: I. P. Shubkina, who discussed the problems of mutual linkage between current and multiannual planning of enterprises; G. L. Shagalov, who spoke of the need to give closer consideration to the foreign economic factor in research and also for the institute to be furnished statistical information; A. S. Nekrasov, who spoke about the institute's use of computers. V. O. Chernyavskiy and B. S. Kleyner spoke about the problem of applying the results of scientific research.

The decree of the academic council specifically pointed up the need for supplements and revisions to be made in research plans for 1980 and draft plans for the 1981-1985 period for the sake of performance of the tasks arising out of the decree of the CPSU Central Committee and USSR Council of Ministers dated 12 July 1979, for the institute, in concert with Gosplan, to take an active part in preparing methodological principles and normative acts, for proposals to be submitted on the drafting of supplemental recommendations on methods and normative acts directed toward carrying out that decree.

It was recommended that efforts be concentrated on a further rise of the theoretical level and practical orientation of research, on the preparation of recommendations concerning scientific methods of improving planning and management of the national economy and its individual components.

For the sake of ensuring further intensification and a rise in the effectiveness of research, particular attention was paid to performing the following tasks: development of a scientifically sound system of models which organically unifies all levels of planning and management and includes an economic mechanism for mutual adjustment and fulfillment of plans; creation of a system of interrelated materials on methods, including the technology of planning at all levels, economic levers and data processing capability; improvement of experimental work in the field of both real and simulated economic experiments.

Provision was made for the following in connection with revision of scientific research plans: active participation in preparing materials for the 11th Five-Year Plan and long-range plans for the country's economic and social development; further development and achievement of comprehensiveness in research on the political-economic foundations of the system of optimum shaping of the socialist economy; raising the level of research on scientific methods related to the drafting of the Comprehensive Program of Scientific-Technical Progress; raising the level of scientific theory and practical importance of the institute's publications, recommendations and memoranda embodying its initiative.

The decree recommends preparation of a set of measures aimed at strengthening relations with USSR Gosplan and the gosplans of the union republics, with ministries and departments, with associations (enterprises), and with the scientific research institutes of the union republics, ensuring thereby that support facilities are chosen for effective experimental verification of the models and methodological principles arrived at during scientific research. There is a need to intensify cooperation with the Main Computer Center of USSR Gosplan in accordance with the task of introducing the ASPR in the 11th Five-Year Plan. Recommendations are to be prepared for improvement of the use made in planning practice of methods developed for optimizing development and the location of production in the sectors of the economy.

Particular attention was paid in the decree to the selection, assignment and training of personnel and to more exacting evaluation of the creative productivity of scientists.

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PLANNING AND PLAN IMPLEMENTATION

ECONOMIC METHODS IN PLANNED MANAGEMENT

Moscow EKONOMIKA I MATEMATICHESKIYE METODY in Russian No 2, Mar-Apr 80
pp 221-230

[Article* by D. M. Kazakevich, Novosibirsk: "Certain Problems in Developing Economic Methods of Planned Management," submitted 28 Sep 79]

[Text] The concept of economic methods of planned management has still not taken definitive shape in the economics literature, though it was widely used in the mid-sixties. The following observation was made at the September (1965) Plenum of the CPSU Central Committee: "It is a serious shortcoming of management of the industrial sector that administrative methods are more prevalent than economic methods" ([1], page 641), and an elaborate program of measures was adopted to strengthen the role of economic methods in management of the economy. But so far there has been no unified and sufficiently clear definition of these methods. Without claiming to answer this question exhaustively, in this article we will discuss a number of important aspects of the concept of economic methous of planned management.

Such exceedingly important features of socialist planning as centralized drafting of plans and the directive nature of plans are inherent in economic methods. Command planning is done by combining assigned targets and economic methods. Sometimes the latter are set against centralized command planning. But a mistaken conclusion is drawn from them: if only direct targets specifically assigned can qualify as directive, then the further they are broken down to enterprises, the greater the directive nature of planning and supposedly the better its conformity to the principles of socialist planning; and conversely, a reduction of the number of specifically assigned planning indicators violates those principles.

By contrast with methods based on specific assignment of targets, which presuppose that the direct assignments and targets for output and allocation of resources (including certain economic norms) are broken down to individual economic entities, economic methods signify that the command authorities responsible for managing the economy in conformity with plan draft and approve general planning-and-economic norms which are not specifically assigned and which regulate the economic behavior of production units, whose functioning is structured on the basis of advanced cost accounting (khozraschet). The principal norms in this group are the following: prices and rate schedules; standard levels of efficiency of utilization of productive resources (capital investments, natural resources, etc.), remuneration (wage rate system), depreciation deductions and the use of depreciation funds, the charge on productive resources (for investments in productive capital, for natural resources exploited, etc.) which the state furnishes economic entities; interest on credit; norms regulating distribution of profit between the state budget and cost-accounting entities and deduction of a portion for economic incentive funds, etc.

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* Published for purposes of discussion.

The planning methods based on specific assignments and economic methods can be combined harmoniously in optimum planning of the economy, since the norms used in the system of economic methods of planned management can be sufficiently precise if they are worked out as a result of optimization of the national economic plan. To be specific, we are referring to norms governing utilization of productive resources and prices, which are obtained from the calculations to optimize the national economic plan in the form of valuations of the respective productive resources and products.

The need for economic methods in addition to direct-assignment planning is imposed by the principle of democratic centralism in management of a socialist economy and by the combination of the economy's conformity to plan with commodity-money relations in it. This embodies the objective foundations of cost accounting and conditions which it includes, such as the following: economic separateness of production units and granting them independence in planning and current management of production (within the limits set in advance by direct planning assignments and the system of general economic norms); commensuration in value (money) terms of the costs and results of production and equivalent reimbursement of economic entities for the socially necessary production costs in the prices at which the respective products are sold, the reimbursability of current expenditures and the earning of profit to be distributed between the state budget and the cost-accounting economic entity; full or partial financing of the development of production from accumulated profit (transferred to the production development fund) and capital investment credits.

Economic methods are aimed at utilization of a feedback mechanism in the economy, which is regarded as a complicated self-regulating system, i.e., they presuppose that the economic entities act independently and thanks to the economic norms and incentives will work out decisions that ensure the functioning and development of the separate units of the economy in accordance with the interests of the entire national economy. "Indirect centralization of the solving of any class of economic problems," V. V. Novozhilov has written, "consists of establishing norms for computation of costs and benefits which local people, guided by the principle of 'maximum benefits at minimum cost,' can use in finding their own alternatives that best correspond to the national economic plan" ([2], page 51).

The relationship between direct-assignment methods and economic methods in planned management cannot remain unchanged through all the periods of the country's economic development. Solving this problem, i.e., determining the group of direct and specifically assigned targets and the place of general economic norms in management (and in addition--the boundaries of the economic independence of cost-accounting entities) depends on the specific situation and falls among the central problems of economic policy. It would seem that the general orientation might be the following: if from the standpoints of the goals of the country's economic development in the period under consideration one anticipates that management will derive a sizable benefit from more extensive use of economic norms, while the number of direct and specifically assigned targets would be reduced, it would be wise to follow this direction in improving command planning, i.e., to expand the domain of economic methods of planned management, creating thereby the conditions for production collectives and their managers to show initiative and to bear greater responsibility.*

The decree of the CPSU Central Committee and USSR Council of Ministers adopted 12 July 1979 in accordance with the decisions of the 25th CPSU Congress outlines measures which represent an important step toward development of economic methods in planned management. "It is deemed necessary," it states, "to secure the further development of cost accounting in production associations ... on the basis of the assignments of the 5-year plan and long-term economic norms which guarantee a growth of the resources left to their disposition as a function of improvement of the final results of economic performance ..." ([4], pages 44-45).

The role of the economic norms, both those specifically assigned to individual economic entities, and general norms, assigned in the 5-year plan is increasing substantially. Both the former and the latter are expected to expand the framework of the economic independence of production associations and the domain in which they make economic decisions. Greater application of the pay-as-you-go principle to production costs, partial extension of this principle to expanded reproduction, will also favor development of the cost accounting of associations. To be specific, attainment of these goals will be served by the fact that new wholesale prices in the industrial sector, estimate prices in capital construction and freight rate schedules, which are to correspond to the tasks of the plan and are to remain stable throughout the 5-year period, will be worked out simultaneously with each successive 5-year plan.

Wholesale prices are to be calculated on the basis of a fuller reckoning of the national economic costs of production and will be keyed to units of the useful benefit of the product; at the same time normative net output for the respective product will be determined. In the intervals between general price revision rates of incentive premiums added to prices for highly efficient new means of production, as compared to the prices of the products they replace, will be in effect. Another innovation is the standard wage per ruble of net output, which is to be set in the 5-year plan for groups of industries, ministries and individual associations.

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* We agree, however, with the opinion of P. G. Bunich: "If ... there is a lack of confidence that the economic and administrative instruments are aimed in the same direction, then the advantage is on the side of the latter, which are given priority" ([3], page 43).

Cost-accounting entities will be given stable rates (for the 5-year period in a breakdown by years) of deductions from the profit left at their disposition and stable rates of transfers from that profit to economic incentive funds. The resources of those funds will now be allowed to accumulate to finance projects for technical reconstruction of production and for construction of social welfare and consumer service facilities. A universal ratio of distribution of above-plan profit between the state budget and the cost-accounting entity has been introduced. A charge has been instituted for water, and as for plots of land, their valuation is to be included in project plans for construction of enterprises.

Very important measures are included which make the wages of individual workers dependent upon improvement of the final results of the performance of production associations and which also grant the associations an opportunity to use the saving on the wage fund to raise wage rates or increase the size of bonuses.

Naturally the decree which has been adopted does not exhaust all the possibilities for further improvement of the economic methods of planned management nor for development of cost accounting; it embraces those directions and measures which are altogether clear and which economic practice is prepared to adopt even now. Others are to be studied and given a foundation by economic science for future implementation.

One of the most relevant problems, in our view, is to intensify cost accounting through commensuration in cost-accounting units of production costs against the results of their activity on the basis of a more consistent national economic approach, i.e., bringing prices still closer to the socially necessary expenditures of labor and measuring the cost-accounting costs of production from the standpoint of the country's entire economy. Of course, only the essentials of this problem can be covered in the limits of an article in a journal.

In the economics literature the opinion has become deep-rooted that "socially necessary labor, which forms the value of a commodity, is average labor ... in a given branch of material production" ([5], page 37). From our standpoint this view is theoretically incorrect and justifies an approach to the planning of prices whereby the price does not sufficiently take into account the useful benefit of the product, while the costs of its manufacture, which shape the price, do not reflect the growth of costs in the economy as a whole, in its other sectors, related to the use in the manufacture of this product of limited production resources which might have been used elsewhere.

In practical terms all of this quite often has the result that the economic position of advanced enterprises, which are striving to renew the products they produce in good time, turns out worse than had they continued to produce a product whose production they had mastered, but which is outdated and less efficient from the standpoint of the national economy; moreover, distribution of production resources scarce in the national economy is not sufficiently optimal, nor is their use sufficiently oriented toward the task of raising the efficiency of social production.

Expenditures of live and embodied labor constitute the substance of value. But their socially necessary level is determined socially and depends not only on factors on the side of consumption, but also on factors on the side of consumption of the goods. In a socialist economy the conditions still hold that a product's value is formed, as put by F. Engels, as a consequence of a weighing of the useful benefit and the expenditure of labor (K. Marx and F. Engels, "Sochineniya," Vol 20, p 321). The social usefulness of goods is an objective category characterizing a growth of the benefit of economic activity as a whole related to the production of the given commodity. Labor expenditures are regarded as a growth of the related expenditures of live and embodied labor in the economy as a whole. Consequently, the socially necessary expenditures of labor, which determine the value of good and its price, are formed in the entire economy (and not in an individual sector or industry) as the result of a weighing of the increments of usefulness and the national economic costs resulting from its production.

In the context of socialist economic activity the weighing of the useful benefit and the expenditures of labor to produce various products is done on the basis of the plan, of conscious social regulation, which takes into account the objective law of value along with the other economic laws of that kind of economy.

A number of requirements have to be met in determining the national economic socially necessary costs in planning prices on the basis of this approach. They can be met to the fullest degree in the system of optimum economic planning, when prices are determined or adjusted simultaneously with the drafting of the principal indicators of the optimum medium-term plan. Such prices guarantee that enterprises will be reimbursed those expenditures which are efficient from the standpoint of the national economy in the upcoming planning period. Their level and composition will correspond to the state of consistency between the proportions of the production of products and the effective demand of society. Since they are derived from the totality of planning indicators, these prices link together the interests of local economic entities and those of the entire national economy, and they act as an incentive for fulfillment of the targets of the plan. At the present time recommendations are already being worked out for computation of national economic costs shaping prices on the basis of the optimum approach under present conditions, when an all-embracing system of optimum planning of the national economy has not yet been set up [6-8].

Prices can be improved thanks to this approach, and this should be done provided the costs of the cost-accounting entities are planned and realistically recorded from the standpoint of the national economy. These costs should be in money terms and should figure as money expenditures which cost-accounting entities can actually make. The question of paying for all production resources becomes very urgent in this connection.

A result of improving the prices of the means of production will be that the costs of the national economy for means of production will be recorded more fully in costs as shown in the cost-accounting system. It is an urgent matter to do more work on establishing optimum payments on productive assets at the level of the standard coefficient of the efficiency of investments in the assets.

One of the most serious problems in improving the methods of measurement and planning costs is to see that they fully reflect consumption of natural productive resources. It is not enough for production costs to include only the direct and immediate expenditures to apply natural resources to production. Natural resources are difficult to renew, and some of them are nonrenewable; in a specific planning period the more efficient natural resources are relatively limited, and therefore the use of the best of them in a given sphere of production and the resulting reduction of its production costs inevitably involve a rise of costs in those sectors of the economy which are receiving the less efficient natural resources. The national economic approach to measuring costs requires that a differential rent on natural resources be reflected in the costs of every sphere of production and every economic entity. This rent should be the basis for computing the charge for water, which has already been planned for introduction, and later for computation of the charge on land, minerals and other natural resources.

The calculated (on the basis of rent rates per unit of the resource) charge on the natural resources utilized by the cost-accounting system and paid into the state budget will be included in the cost-accounting costs of production, or the payments on the primary natural resource included in the productive capital of the enterprise exploiting the natural resource on the basis of its capital rent valuation shall comprise a portion of the charge on productive capital.

The problem of reflecting all expenditures to utilize manpower resources in cost-accounting costs is an equally urgent problem, since at the present time wages are reflected in the production cost as a portion of those expenditures. The next step after increasing the size of deductions for social insurance might be contributions paid on wages to build up that entire portion of budget appropriations which goes for reproduction of manpower through social consumption funds [9]. A charge on the use of manpower resources based on differentiated valuations reflecting its relative scarcity would be progressive ([10], pages 263-265).

Along with transfers of a portion of the profit of enterprises to the unified fund for development of science and technology created by ministries to finance R&D projects, collection of a charge on applied scientific research and project planning and mechanical engineering development and improvement of the mechanism for reimbursement of cost-accounting units for their outlays and losses in pioneer efforts in the field of new technology would have great constructive significance, as would economic incentives to encourage that kind of development work [11, 12].

In our view extension of the principle of measuring costs so as to take into account the time factor to the system of cost-accounting relations has an important place among the problems in improving the methods of planning and measurement of costs and the transition to a higher level in development of cost-accounting relations in the national economy.

Costs incurred in the same nominal amount in different years are not economically equivalent. Not uncommonly one must choose between alternatives of capital investments in new projects which are different in the number of years of construction time. Moreover, the alternatives have differing distribution of the capital investments over the years of construction--for some larger investments are needed in the initial years and smaller ones in the final years, while for others the reverse would be true. The efficiency of alternatives cannot be compared on the basis of nominal amounts of capital investments.

In principle when one is planning a benefit to be obtained in the future and requiring capital outlays, it is advisable that those outlays be made at the latest possible time, as close as possible to the time when the benefit is anticipated. In other words, when planning alternatives are being chosen, one should strive for the smallest interval of time between the investments and their return, i.e., to minimize the average weighted time which the capital invested stands idle in the construction of the projects. This is attainable if in the comparative evaluation of planning alternatives costs are commensurated in time, i.e., if one uses adjusted rather than nominal amounts of capital investments for different years: the capital outlays of the previous periods are compared and totaled after being multiplied by discount coefficients, whose size depends on time and reflects the unequal efficiency of outlays in different years from the standpoint of the length of the interval of time between the expenditures and the benefit to which they relate.

The theory and method of determining the discount coefficients continue to be a topic of discussion, though they have largely been worked out already. Most specialists agree with the treatment of the content of the discounting of expenditures in the writings of A. L. Lur'ye, which propose that a uniform standard coefficient of the efficiency of capital investments in the national economy be used to calculate the discount coefficient [13]. The comparison and the selection of planning and project alternatives on the basis of discounted amounts of capital investments should in our opinion be extended to evaluation of the performance of construction organizations and to the system of cost-accounting relations between them and their clients. At the present time amounts of capital investments required for new projects are recorded not on the basis of the adjusted value of construction, but in the nominal amounts, without taking the discount into account. Moreover, attention is not paid to the discount in the system of cost accounting. Departments figuring as clients pay for the activity of construction contractors on the basis of the estimated cost, which is computed regardless of how many years the project is under construction and regardless of whether actual construction time corresponds to the time anticipated in the plan. This is conducive to the simultaneous construction of an excessively large number of projects at the same time and to an increase in construction time. Construction contractors do not have sufficient economic motivation to withstand the desire of departments to begin construction of new projects calculated for extended periods, nor to rigidly hold to the planned schedules for erection of projects, since often the payment of construction organizations operating on cost accounting does not depend on staying within the periods allowed for construction.

At the present time the commercial output of construction--the value of construction and installation work on projects which will be delivered to clients in finished form during the planning period--is being introduced into the system of indicators for planning and evaluating the performance of construction contractors. By contrast with the indicator previously in use, the new indicator is aimed at encouraging the activation of finished products and at reduction of the volume of construction in process.

Expansion of the role of bank credit also has great importance in the overall program of measures to be carried out in accordance with the decree of the CPSU Central Committee and USSR Council of Ministers dated 12 July 1979: it is to be extended to associations for reconstruction of enterprises when the accumulated development fund is inadequate, construction contractors are to be financed with credit throughout the entire period of construction up to delivery of finished products to clients and up to the full estimated cost of construction or of reconstruction of enterprises, and higher rates of interest are to be charged when deadlines for delivery of the projects are not met.

On the basis of the directions outlined for improvement of the economic mechanism in the construction industry, attention should be paid, in our view, to study of the question of basing the planning of capital investments covering a number of years on the adjusted rather than the nominal cost of construction so as to the into account the discount, which is determined by using the uniform standard coefficient of the efficiency of investments to make costs commensurable in time, which is set by planning authorities for the planning period.* The principle of planning and recording the adjusted cost of construction should, of course, be extended to the entire cost-accounting system of construction organizations and to settlement relations between construction contractors and their clients. This means that the economic incentives of construction contractors should be structured on the basis of the adjusted cost of construction, which ought to be reflected in the estimated cost of the project, and not the nominal cost. If construction time extends beyond the time planned, this should be reflected in the economic incentives of construction contractors, which will create a certain economic mechanism to "oppose" attempts by departments figuring as clients to commence construction of new projects without having completed construction of previous ones.

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* We are referring to the standard coefficient Ye_{np}, which differs from the standard coefficient of the efficiency of capital investments Ye_n, only until the transition is made to their uniform value.

Measurement of construction cost so as to take into account the time factor presupposes introduction of the principle of discounting costs in the system of cost accounting throughout the national economy and a greater role for the credit system.

The interest the bank collects on loans and also the interest which the bank pays on current and giro accounts of cost-accounting organizations are to be oriented toward the standard coefficient of the efficiency of outlays, which is established in the national economy for a prolonged period so that all types of outlays can be compared in time. Construction contractors will incur expenditures to build projects at the expense of their working capital and bank credit. Investing their own working capital signifies that the construction organizations lose the interest they would have obtained had this capital not been invested in an unfinished project. The size of the amount lost depends on the construction lag. To carry on a construction project with borrowed working capital requires the payment of interest, and the size of the amount of interest depends on the lag.

The estimated cost which is used in settlements between departments figuring as clients and construction organizations is determined as a function of the planned construction time as the adjusted value of the project according to which the client settles for the finished project (an enterprise whose construction is completed or some part of it that has been put into productive operation). If the construction time does not exceed the planned time, the contractor receives from the client an amount that reimburses the working capital invested in the project and compensates for interest paid on borrowed funds (or losses from tying up own working capital in construction). The amount received will also provide the construction organization planned profit.

When the construction time exceeds the planned time, the amount which the client pays to the construction organization will not be sufficient to compensate for interest paid the bank on borrowed working capital and the loss from the idleness of own working capital, nor will it provide the planned amount of profit. The financial condition of the construction organization will deteriorate, transfers to funds formed by the construction organization with a portion of its profit will diminish.

if construction time is less than the time planned, funds obtained from the client to reimburse outlays will exceed the actual sum total of investments in construction and expenses because of the idleness of capital. This will ensure that actual profit is greater than the planned profit and will also increase that portion of profit which is left with the construction organization.

Adoption of this type of cost-accounting relations between clients and contractors is also important in that it will create economic motivation on the part of construction organizations to bring the principal investments in projects under construction closer in time to their delivery for operation and to reduce the investment lag. Its reduction as compared to the planned time assumed in computation of the estimated cost of construction will make it possible for construction organizations to turn into profit a portion of the amount received from the client and intended to reimburse costs based on the idleness of capital during construction. Construction organizations will be economically motivated not to build a large number of projects at the same time and to erect them in order, to concentrate their principal resources on projects near completion, and to reduce the amount of unfinished construction.

Project planners will be motivated to establish strenuous planned construction time, since hiking them up will mean a higher planned estimated cost of projects. This can have an effect on the approach to project planning by encouraging the planners to foresee more frequently the phase-by-phase operation of the project, partial overlapping in time of project planning and construction, and expansion of the front of construction work and a high degree of synchronization of construction processes.

It is quite obvious that in the proposed system of cost-accounting relations in the construction industry establishment of sufficiently sound planned times for erection of projects becomes one of the central factors. The principles set forth for taking into account the time factor in the system of cost-accounting relations is, of course, in need of more thorough study and experimentation. It is important to provide for creation of incentives that bring about sufficient motivation on the part of construction organizations themselves to have strenuous planned times for construction of projects.

The transition to measuring costs so as to take into account the time factor is at one and the same time necessary in the entire economy and advisable both with respect to capital outlays and also current costs. From the broad positions of the national economy and from the standpoint of the prospective development of the economy there is no sharp line dividing capital outlays from current costs. In the economy as a whole, viewed in dynamic terms, the division of costs into current and capital costs is rather provisional; in the process of reproduction they are reversible, and therefore one and the same approach should be taken to all costs, both capital costs and current costs should be reckoned not in nominal amounts, but as time-adjusted amounts. Discount multipliers whose structure would be governed by the same principle for both capital costs and current costs must be used when amounts for different years are added up.

In various industries where the production cycle lasts more than 1 year, costs reflected in the production costs should be computed so as to take the discount into account. Stocks of fuel, raw materials and other physical resources of enterprises and also of intermediate products produced on the premises should be valuated so as to take into account the time factor, since slowing down the turnover of capital in the form of inventories will result in losses. If a delivery of means of production has been delayed, and the customer suffers losses, the supplier must reimburse that amount, which is computed by the general methods of determining discounted costs. If payment for a delivery has been delayed, the consumer pays a larger amount; the amount of the increase will depend on how long the delay has been and will be calculated in accordance with the accepted principles of discounting costs. Relations of all cost-accounting units with the banking system should be structured according to these same uniform principles of measuring funds which are in movement.

It is wrong to suppose that implementation of these principles will impart something provisional into cost-accounting relations, something that would estimate income and losses which do not actually occur. The point of departure should be the real situation, which is that capital in the national economy is limited: its use in a given area deprives other participants in the economic process from their respective possibilities. The funds invested are materialized in real resources, whose use brings about a real benefit. This benefit, computed as a standard benefit, is in fact taken into account when costs are commensurated in time in the system of cost-accounting relations in the national economy. Use of time-adjusted cost figures in the system of cost accounting is in line with the real tasks of raising the efficiency of social production.

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IMPROVING PROJECT PLANNING, SURVEY WORK IN INVESTMENT

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[Article by A. I. Sidorov: "Sectoral Planning of Project Planning and Surveying--A Factor in the Efficiency of Investment Processes"]

[Text] An attempt is made to summarize experience in the planning of PIR [project planning and surveying] as a component of the investment cycle organically related to the process of carrying out capital investment projects. An analysis of the present system for planning PIR at the level of the sector or industry and the union republic makes it possible to offer a number of proposals, including a sample method for drafting the 5-year plan of PIR at those levels. The method the author proposes calls for an integrated approach to the planning of the production and economic aspect and the social aspect of the activity of project planning and surveying organizations.

The main direction of the party's economic strategy over the very near future is dynamic and proportional development of social production, a rise of production efficiency, and an all-out effort to improve the quality of performance in all components of the national economy. Greater intensification of social production, whose level may be determined by a comparative evaluation of the dynamic pattern of total expenditures of production resources and their results, is a very important means of achieving that goal.

The following are important factors affecting the rise of the intensification of production: a) improvement of the composition and quality of production resources; b) improvement of the organizational conditions of production (the organizational structure of management, etc.); c) development of social conditions (more emphasis on nonfinancial work incentives).

Activation of unused internal potential, a stricter economy regime, faster application of the advances of scientific-technical progress, improvement of working conditions, and so on, will serve as an essential source from which to increase intensification.

The orientation toward comprehensive use of intensive methods of conducting economic activity is especially important to capital construction: it must react extremely rapidly and flexibly to the requirements of production as they change under the impact of scientific-technical progress. This means that all components of the investment process: "science--engineering (industrial engineering, project planning and surveying and experimental construction)--construction--consumption of the completed projects"--must function as a unified whole on an intensive basis.

The decree of the CPSU Central Committee and USSR Council of Ministers dated 12 July 1979 and entitled "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality" emphasizes the need to improve all planning work, including optimum combination of the sectoral and regional aspects of planning, multiannual and current plans, and guaranteeing balanced economic growth. All of this necessitates improvement of the quality with which intersector and regional comprehensive programs and scientific-technical programs are drafted, more complete incorporation of scientific-technical advances and progressive know-how, improved stability of 5-year plans of capital investment projects (including comprehensive plans for enterprise retooling and reconstruction), as well as linkage of 5-year plans of project planning and surveying with capital construction plans.

Successful performance of this task is possible on the basis of a further improvement of the entire economic mechanism and of the economic mechanism of project planning and surveying organizations in particular.

On the basis of a summarization of experience in the functioning of the country's project planning complex and the results of a discussion[1] conducted in 1977 and 1978, we have proposed a scheme for the economic mechanism of the project planning industry consisting of the following elements: organizational and economic relations, the management system, centralized planning, centralized regulation (cost accounting), and other economic levers. The integral economic indicator of the system was the degree of satisfaction of the need for project planning output on schedule adjusted for the economic benefit of project plans and estimates [PSD]. An analysis of the particular components of the economic mechanism of the project planning industry indicates substantial opportunities for its improvement and a need to conduct a further study of all its aspects and to bring it into conformity with the requirements of project planning practice.[2]

Improvement of the economic mechanism governing the functioning of project planning organizations would be advisable along the following lines: 1) more elaborate specialization and cooperative arrangements in the project planning industry; 2) improvement of the organizational structure of management of PIO [project planning and surveying organizations] so as to take into account changes in the structure of the economy; 3) improvement of economic and social planning; 4) development of cost accounting and an improvement of the system of work norm setting and remuneration and also the system of economic incentives that is inseparably related to further development of the forms of socialist competition.

The project planning industry possesses appreciable internal potential for increasing its efficiency. For instance, a most important potential lies in elaboration of the processes of concentration in project planning when project plans are being prepared at a high scientific and engineering level. This is all the more important because the cost of project plans is an intermediate product with respect to the final product of the sector (the completed project). Between 1960 and 1975 the volume of project planning work per organization increased 2.1-fold, and the output of project planners 1.8-fold. The relative share of small PIO with a volume of operations under 700,000 rubles is 33 percent, the share of those with a work force under 250 is 44 percent; the profitability indicator dropped from 30 to 19 percent, i.e., by 37 percent.[3] Output in 60 percent of Leningrad's PIO is below the average level; construction is for this reason experiencing a shortage of designs worth 10 million rubles. On the average for Leningrad labor intensiveness per million rubles of project planning and surveying corresponds to the labor expenditures of 258 persons; where the level of concentration of the project planning industry is below the average, it is 350-367 persons, and where it is higher than the average, it is only 215 persons, or 17 percent less.

The advantages of large PIO are the following: high level of operational technology, improved organization of production and work; efficient use of physical resources, including improved and large-capacity designing equipment; a lower level of (conventional) direct overhead costs related to management and support services. Large PIO prepare better-quality PSD faster and at lower cost. Continuous improvement of project planning equipment is increasing the economic significance of large PIO. At the same time, in any stage of development consolidation of PIO has its expedient limit beyond which the advantages of consolidation become negligible or disappear altogether.

Table	Group and Number of Institutes		
	First (5)	Second (6)	Third (1)
Average size of the work force, number of persons	458-557	982-1,235	2,943
Work force components, number of persons:			
Administrative and managerial personnel	5.0- 6.6	4.1- 6.3	4.2
Supervisors of structural subdivisions	12.5-18.1	11.2-16.3	19.0
Supervisors of sectors	2.0- 4.8	1.1- 4.1	2.0

Table (continued)

	Group and Number of Institutes		
	First (5)	Second (6)	Third (1)
Chief engineering designers, chief architectural designers, and chief specialists	3.0- 8.2	5.9- 8.9	7.8

It is well known that the process of specialization and concentration of production inevitably involves improvement of the organizational structure of management. But this factor is not fully taken into account in project planning practice. In project planning the organizational structure of management takes many forms: comprehensive, mixed, functional, and so on. Moreover, provision is not made for a direct connection between these types of structures and the sectoral specialization of project planning, so that the excessive differences of the structures used in PIO are not founded on the amount of work and peculiarities of the projects being planned. This is confirmed by the figures for a number of Leningrad institutes in 1978 shown in the table (the figures are per 100 workers).

As the size of the work force and the volume of operations increase, the organizational structure of PIO does not become more progressive, i.e., efficient: structural units are devised without any connection whatsoever to the scale and character of the work done and the place in the organizational and management charts of the institute. The jumble we see of the terms "division," "sector," and "group" and the less than optimal distribution of rights and responsibilities, as well as of work functions, result in unjustified discrepancies in remuneration which do not conform to the character of the work done by project planners.

On the average development of a standardized (model) organizational structure of the PIO and its adoption make 8 percent of the work force of the PIO available for other work, which amounts to about 70,000 persons in the country's project planning complex.[4]

The process of PIO concentration needs to be coordinated and planned. Above all there is a need to determine the economically advisable size of the PIO that guarantees the best use of creative potential and fixed and working capital and attainment of the highest final results.

Establishment of the optimum size of a production capacity affords the possibility of making provision for its efficient use by working out optimum standards for utilization of production lines, computer use, increasing the machinery per worker ratio, and making the pace of operation more uniform. It is of particular interest for the PIO to determine indicators of the organizational and technical level of production and to convert these indicators to indicators of economic efficiency. The method of reference to a standard can be used to work out the indicators of a production capacity.

The efficiency of project planning is higher in comprehensive organization which have both project planning and scientific research sections. For example, 20 percent of the comprehensive Leningrad PIO provide plans in a short time for the most important projects; scientific research institutes and design offices which directly relate science and project planning speed up the application of the results of scientific developments in project planning practice. This strengthens the feedback of scientific subdivisions, enriches the experience of construction and speeds up attainment of rated capacity.

A stable disequilibrium between the work schedule and capacity is typical of the project planning complexes of specific sectors and industries. As a result the share of work done by PIO for other ministries and departments represents approximately 28-34 percent of the entire volume, which runs counter to the principle of specialization. This is a consequence of the lack of a sound method for planning the concentration, specialization and cooperation in project planning, and that detracts essentially from its efficiency. The location of project planning organizations does not conform to the distribution of capital investments over the country's regions; an urgent need has arisen to set up agencies which would coordinate the activity of project planning organizations of a given region with respect to performance of comprehensive programs. For example, only a small percentage of the work done by Leningrad PIO is for their own region.

Comprehensive plans for economic and social development of production complexes, administrative regions, oblasts, and so on, are taking on particularly great importance in the context of advanced socialism. But an analysis of the practice of social planning has revealed a number of shortcomings in the compilation of the plans themselves (the plans of many enterprises and administrative units are not comparable because of differences in indicators, norms, the base level chosen, the degree of detail and the amount of work done on specific matters, and so on). What we have noted is a consequence of differences in the depth of analysis of the mechanism whereby the law of planned and proportional development operates in the economic and social spheres. This circumstance also provides an explanation for another shortcoming, which is the slackness in identifying the causal and functional relations between the technical-and-economic development of the entity being planned and its social development, as well as difficulties of putting social processes and phenomena into quantitative terms. Another important factor is that social and economic processes do not necessarily take place in the same time frame or on the same scale. A large potential for making comprehensive plans more effective lies in solving this problem.

We should note that the practice of having local soviets approve the comprehensive plans of constituent administrative and regional units presupposes also a certain procedure for preparing the plan of the project, reporting procedure, and so on. Consequently, comprehensive plans of the economic and social development of project planning organizations of a given region as a unified whole does have the right to existence.

An analysis of the present system of planning PIR has made it possible to formulate recommendations on improving the system of sectoral planning of the activity of PIO at the level of the sector or industry and the union republic. An analysis has shown that there are a number of essential shortcomings in the planning of PIR and the activity of PIO as a whole which might be corrected as follows: removal of unrealistic projects from topic plans; correction of the scattering of funds over numerous projects; increasing the degree of comprehensiveness of plans governing the activity of PIO, thorough technical-and-economic substantiation so as to take into account the rise of labor productivity, the rise in the economic efficiency of production, improvement of the output-capital indicator, improved dynamic pattern in utilization of the productive capability of the PIO and of its creative potential, and so on.

For instance, in ministries and departments plans of the economic and social development of project planning institutes are not ordinarily compiled at the level of the sector or industry and the republic; certain measures related to improvement of the performance of project planning and surveying and project planning features on the basis of the most recent recommendations do not embrace all aspects of project planning and improving the quality of the product.

An attempt to compile a 5-year plan of PIR for project planning associations of Glavpromstroyproyekt of USSR Gosstroy was unsuccessful--the annual indicators were corrected by using the method of reference to the level already achieved because the client's plan for the subsequent years did not show the volume of capital investments, the volume of construction and itemized lists. A stable and balanced prospect for the work of scientific research institutes, PIO and construction and installation organizations could be guaranteed by an interrelated system of plans covering periods of various lengths and taking into account the physical, financial and labor resources of those organizations.

An analysis of the plans of social development of a number of PIO confirms that potential exists for the improvement of project planning, since many issues in this field have not been completely solved by any means (indicators of the socialist way of life, norms and indicators of the social development of work collectives, etc., have not been worked out).

A favorable view should be taken of the practice of Glavpromstroyproyekt, which proposes mandatory use of progressive fabrications and materials in project plans being prepared. The project planning administration of Gosgrazhdanstroy is drafting a plan of organizational and technical measures. On the basis of this plan, once it is approved, the PIO draft plans pertaining to their own conditions. But it is a shortcoming of the projections we have mentioned that the measures are not furnished an adequate technical-and-economic foundation: costs of introduction are not concluded in all items, the economic benefit is not fully reflected, nor is the transition made from the indicator of the planned benefit of adopting the measure to the actual benefit. This is especially typical of measures to raise the technical-and-economic level of project planning. This, of course, fails to give an accurate idea of the unused potential in project planning and of the opportunity for analyzing the activity of the project planning complex as a whole and also of compiling a strenuous plan for the PIO at the level of the sector or industry. The establishment of order in the planning of PIR and compilation of 5-year plans of the activity of PIO on the scale of the country, the sector or industry and individual organizations would make it possible to increase the efficiency of project planning.

The draft the author proposes of a standard method for drafting the 5-year plan of the project planning complex of the country, the sector or industry, the union republic (economic region) for the 1981-1985 period includes 57 forms, which fall into 12 sections: 1) production and delivery of the product of project planning, 2) technical development and organization of project planning, 3) indicators of the rise of the economic efficiency of project planning, 4) norms and standards, 5) capital investments and capital construction ("own"), 6) material and technical supply, 7) labor and personnel, 8) production costs, profit and profitability of operations, 9) economic incentive funds, 10) financial plan, 11) collective's social development, 12) environmental protection and optimum utilization of natural resources.

The principal indicators in the technical, project planning, and financial plan include 45 indicators which are established and 70 which are calculated and assigned by the ministry. We will discuss briefly certain typical peculiarities of the plan which reflect the functional peculiarities of the project planning complex of a sector or industry.

In the section entitled "Production and Delivery of the Product of Project Planning" one should single out the indicator of output in physical terms, which is assigned as a target, specifically: a) the most important projects from the standpoint of the national economy (the drafting of schemes of the industry's future development and location within the limits of economic regions[5] and regional industrial complexes, including the schemes of industrial parks; participation in solving scientific and technical problems so as to take into account experimental construction, i.e., experimental project planning, compilation of TEO [technical-and-economic justifications, or feasibility studies] for projects under the points enumerated above, as well as project plans and estimates for export); b) the output of project planning on a series basis, projects for construction in the current year and future years; c) preparation of standard designs, standards and other normative and methods documents; d) miscellaneous output of project planning (nonstandard equipment, experimental work on application of new technology in construction, various types of technical assistance, and so on).

Further on in the section there follows a balance of the project plans of the industry or sector in the republic and the region, which shows whether project plans exist to meet the needs of construction. The following example confirms the need for this indicator, which is a planning target. As of 1 January 1978 the size of outlays for project planning work in the form of unfinished construction had reached 8 billion rubles, as against 3.4 billion in 1970. Moreover, in the 1970-1975 period outlays for project planning were written off in the amount of 398 million rubles on construction which was not done. Thus unfinished construction alone contains project plans and estimates sufficient for three or four annual plans of construction and installation work; the increase in the volume of work in process over that period, which was 0.8 percent, corresponds to a 2.3-fold increase of "unfinished" project plans. The disproportionate nature of a growth of this magnitude and the economic unjustifiability of this growth are obvious.

In a breakdown by individual ministries the preparation of project plans in advance is still more striking: for example, the Ministry of Railways has plans 10 years in advance for Leningrad projects, and the AUCCTU 15 years in advance. The clients do not bear the responsibility for this accumulation of documentation, and unused project plans and estimates are not reflected in statistical reports.

The need to work out a regional-sectoral balance of project plans and for an analysis of its fulfillment is obvious. There is also a form in the technical, project planning and financial plan of the complex that serves this purpose.

The economic potential of the project planning complex should include the following indicators: the plan for application in project plans and estimates of the results of the industry's R&D and the advances of other industries under decisions of the USSR State Committee for Science and Technology, the USSR Academy of Sciences and USSR Gosstroy, including mandatory computations of the anticipated economic benefit of applying the R&D; the total saving on the estimated cost of the projects planned as compared with the established standard; the indicator (coefficient) of the stability of the estimated cost of projects built as compared with the established standard; the total actual saving on the estimated cost of the projects built; standards of imputed costs per unit output; the total saving on imputed costs relative to the volume of the industry's capital investments in the optimum variant (this is conducive to formation of a progressive structure of reproduction in the industry and progressive norms of specific capital investments per unit growth of capacity or output or per unit saving on physical and labor resources).

In the section entitled "Technical Development and Organization of Production" there is a separate form entitled "Expert Evaluation of Project Planning Materials of the Sector or Industry," which answers the need to correct shortcomings in the present system of expert evaluation of project plans: the fact that project plans are not always checked and the low level of the expert evaluation that is done. This form reflects the number of project plans examined by the experts and the agencies making the expert evaluation, the percentage of project plans and estimates checked, the reasons for the upward (downward) adjustment of the estimated cost, and also the result of the expert evaluation--reduction (absolute or relative) of the estimated cost.

The section "Economic Incentive Funds" is important to the rise of labor productivity and to improving the quality of performance. The causes of lower efficiency of the present system of planning and material incentives can be broken down into the following groups: 1) causes of a general nature (the lack of summary indicators, the fact that the size of the incentive depends little on the results of the collective's work, and so on); 2) shortcomings in methods instructions (sources of incentives not guaranteed, a large time interval between performance of projects and the award, the absence of periodic reassessment of the system, and so on); 3) causes which depend on the client (lack of the necessary funds, clients' frequent changes of project planning assignments, and so on). The survey the author proposes to analyze the system of economic incentives makes it possible on the basis of expert evaluations to rank the stimulating factors with respect to their significance and to work out proposals for enhancing the responsibility of project planners.

The conditions under which project planning institutes operate do not guarantee unfailing intensification of production. The output of project plans and estimates is increased through extensive methods. The consequence is an excessive number of job slots in this industry as compared to the number of personnel and a high demand for project planners, and this tends to reduce the intensity of work, especially when the level of mechanization and automation in project planning and surveying is low. Ordinarily this results in more rapid growth of wages than of labor productivity. For instance, in the labor plans for 1979 of 45 project planning and surveying organizations at the republic and local level (RSFSR) the growth rates of wages exceeded the growth rates of labor productivity (Gor'kiy Affiliate of the GiprodorNII 12.8 percent and Tulagiprosel'stroy 9 percent, and so on).

An analysis of the performance of Leningrad project planning and surveying organizations over the 1976-1978 period shows that in a number of organizations the level of economic planning is low, and norm setting is not orderly; as a result the project planning and surveying organizations are interested in having an excessively large number of personnel. The output indicator for 1980 varies in the range from -10 to +20 percent, i.e., a number of PIO plan an increase in the number of personnel though the amount of project planning and surveying work is remaining stable.

The balance of labor resources should be linked to the balance of fixed productive capital by means of the indicator of the value per job slot for project planners.

Three factors have particularly great importance: adoption of new conditions for remuneration (worker incentives based on high performance figures), adoption of the Shchekino method and adoption of the team job contract in project planning. Acknowledgment and adoption of these factors in project planning practice increases the importance of setting norms to govern the expenditures of labor of project planners remunerated on a time basis as a factor in improving the organization of work and operational management of project planning (unproductive time expenditures comprise 8-15 percent). For instance, adoption of the Shchekino method will make it possible to free at least 100,000 persons, taking into account a certain redistribution of those employed in project planning to the country's eastern regions and an additional increase in the volume of work not covered by the rise of wages.[6]

In the context of the transition of a number of ministries to the new system for planning, financing and economic stimulation of projects embodying new technology, a number of project planning projects are to be financed from the YeFRNT [Unified Fund for Development of Science and Technology]. The standard regulation on the YeFRNT should provide for the resources of this fund to be used to finance projects such as project plans for projects to be built in the current year and future years, charts of the future development and location of the sector or industry, and the drafting of sectorwide or industrywide standards.[7]

The project planning and surveying organizations of sectors and industries should prepare standard project plans on the basis of cost-accounting relations with the Central Institute of Standard Project Planning of USSR Gosstroy. Reflecting these factors in the technical, project planning, and financial plan will help to improve the financing of PIR and to strengthen cost accounting.

The use of mathematical methods and computers and adoption of computerized management systems is helping greatly to improve management and planning of the project planning complex. But some of the problems they are used to solve are still not adequately interrelated (to be specific, this applies to calculations of labor productivity, to the system of indicators of the scientific-technical level of project planning organizations, to determination of the level of intensification of production and to the planning of production capacities). What we have said is a consequence of the fact that models of the basic levels of administration (the country's project planning complex, the project planning organizations of the sector or industry, and individual project planning organizations) are not always used in working out these indicators, and the computations themselves (for all three levels) are made on the basis of one and the same normative information, i.e., without taking into account the attributes of integrity when the move is made from one level of administration to another higher level.[8] Consequently, the sizable unused potential of the multilevel system for optimization of project planning is not being fully utilized. On the scale of the country's project planning complex, this results in annual losses of project plans totaling at least 100 million rubles.

The increased complexity of relations in the process of planning and fulfillment of plans is giving rise to the need for a new form of activity--

management of fulfillment of the national economic plan at all levels. At the level of Gosplan in the sector or industry as a whole this would be promoted by the subsystem "Project Planning and Surveying Work" in the computerized system of planning computations (ASPR), whose task it would be to shape the plan of PIR for construction in future years on the basis of itemized lists. On the basis of a restriction pertaining to specific criteria it is possible to adopt optimum decisions to take into account the correlation of project planning times with construction times (with possible adjustments of the latter) and to choose the best variants of project plans for project planning and surveying with respect to the entire set of quantitative and qualitative indicators.

The method for shaping the 5-year plan of project planning complexes of ministries, departments and union republics will facilitate the following: 1) elimination of the gap in the system of planning at these levels between the respective industrywide conduct of scientific research and project planning and surveying, which under present conditions are most subject to changes in conjuncture, which has an effect on the quality of performance of the sectorwide or industrywide project planning complex and results in substantial economic losses: failure to furnish project plans and estimates to individual construction sites, the existence of "low-quality" expenditures, and higher cost of operation of industrywide project planning and surveying organizations; 2) scientific substantiation of the prospects for development of the sector or industry on the basis of charts of development and location of enterprises, improvement of TEO for construction of individual projects, delivery of the necessary project planning materials to the construction site by the dates set by clients; a rise of labor productivity and higher functional efficiency of sectorwide and industrywide project planning and surveying organizations on the basis of further development of specialization and cooperation in project planning and uniform load on project planning organizations; 3) closer monitoring of fulfillment of the plan; 4) promotion of the fullest accomplishment of capital investment projects in project planning itself and easier elimination of contradictions in the operation of the complex. This will be manifested in two ways: project planning and surveying organizations will have a greater influence on the economic efficiency of the process of reproduction in the sector or industry, the republic, or region and on the rise of production efficiency; it will become possible for the project planning complexes of the sector or industry to function solely on an intensive basis (at present with the same number of personnel, and later with fewer people thanks to improvement of the economic indicators of performance). A beginning could be made even within the current 5-year period.

In performing one of the central tasks of capital construction--"construction that is rapid, economical and on an up-to-date technical basis"[9]--one of the components of high efficiency is improvement of project planning, and one way of doing this is to improve the planning of project planning itself at the level of the sector or industry, within the union republics and economic regions on the basis of 5-year plans. This is an additional factor that would help to carry out the decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality."

FOOTNOTES

1. EKONOMICHESKIYE NAUKI, 1977-1978.

2. This explains why scientific research is included in the plan with respect to the most important economic problems in the study "Main Lines of Development and Technical Improvement of Project Planning in the USSR in the 11th Five-Year Plan."

3. Sidorov, A. I., "Management of the Concentration of Project Planning," paper delivered at the All-Union Scientific Conference entitled "Concentration of Production and Improvement of the Economic Mechanism of Management," held 21-23 December 1977 in Leningrad, p 167.

4. Dobrin, G. I., "Study of Improvement of the Organizational Structures of Project Planning Institutes," author's summary of a candidate's dissertation, Moscow, MIU imeni S. Ordzhonikidze, 1979, p 16.

5. Project planning, which is done on the basis of multiannual plans of capital construction, the main technical directions in the design of various projects, schemes of the development and location of the productive forces, the shaping of regional industrial complexes, the optimum capacities of the industrial enterprises and feasibility studies, confirms the economic advisability and necessity for drafting project plans. But the charts of development and location of sectors and industries and other documents are not regulatory and basic documents; that is, there is no foundation for arriving at an effective long-range prospect for development of the sector or industry (KOMMUNIST, No 3, 1979, pp 36-45).

6. Sidorov, A. I., "The Cost Accounting of Project Planning Organizations--A Factor in Improved Use of Manpower Resources," paper delivered at the All-Union Scientific Conference entitled "Cost Accounting Levers To Promote Effective Utilization of Physical, Labor, Financial and Natural Resources," Vol 1, Moscow, 1978.

7. "Metodicheskiye ukazaniya o poryadke obrazovaniya i ispol'zovaniya YeFRNT" [Methods Guidelines on Procedure for Formation and Use of the YeFRNT] do not provide for these outlays to be made from the unified fund, EKONOMICHESKAYA GAZETA, No 39, 1978.

8. PLANOVOYE KHOZYAYSTVO, No 2, 1977, p 53.

9. "Materialy XXV s"yezda KPSS" [Materials of the 25th CPSU Congress], Moscow, Politizdat, 1976, p 46.

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INDUSTRIAL DEVELOPMENT AND PERFORMANCE

ECONOMIST DISCUSSES FIXED CAPITAL RENEWAL

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 4, Apr 80 pp 79-83

[Article by N. Budunova, Candidate in Economic Sciences: "The Renewal of Operating Industrial Fixed Capital: Planning and Effectiveness"]

[Text] Under present-day conditions great importance is being attributed to increased work on the reequipping and reconstruction of operating enterprises. But the practice of planning capital investments in operating enterprises is not yet based on generalized branch recommendations on the choice of effective directions of fixed capital renewal. For this reason, insufficient use is being made of substantial reserves for increasing the effectiveness of this process.

Many economists believe that the reconstruction of an enterprise is influenced only by specific conditions and factors: the degree of wear and tear on fixed capital and its technical level, the existence of "bottlenecks" or reserve areas, and others. However, studies which have been carried out on the materials of a number of branches of industry have shown that there are general laws of the renewal of the fixed capital of operating enterprises. In particular, an analysis was made of the work of metal-cutting machine tool plants over a period of twelve years and of textile factories for nineteen years. The enterprises were grouped in relation to the growth of fixed capital for the following intervals: in machine tool building -- up to 200 percent, from 201 to 300 percent, and more than 300 percent; in the cotton textile industry -- up to 300 percent, from 301 to 500 percent, and more than 500 percent. This made it possible to trace the interconnection between the depth and character of the renewal of the means of labor. In order to increase the reliability of the conclusions of the study actual costs and physical indicators were used, and also materials for an individual branch, which weakened the influence of the diverse technological characteristics of different branches.

The result of the analysis convinces one that the higher the growth rates of fixed capital the sharper the change in the character of their renewal -- reequipment yields its place to the reconstruction or expansion of enterprises.

A characteristic feature of each of the three forms of renewal is the predominance of expenditures for the active or the passive part of fixed capital. Thus, the proportion of construction and installation work in capital investments during the years 1965-1976 for the three groups of machine-tool building plants came to 31 percent, 40 percent, and 49 percent, respectively. If we single out the enterprises in the first and third groups with the smallest (up to 150 percent) and largest (more than 400 percent) increase in fixed capital, the proportion of their construction and installation work will be 22 and 51 percent.

In order to evaluate the direct changes in the passive and active elements of fixed capital in the groups of enterprises of the two branches a detailed study was made of the quantitative changes in the total area of an enterprise, in the construction of production buildings, the area of production and auxiliary shops and of personnel and service buildings, and in basic technological equipment. The growth of these areas at the machine-tool building plants over the twelve-year period and of the cotton textile factories over the 19 year period is reflected in Table 1.

Table 1 (in percent)

	Area of the enterprises by groups					
	Machine tool building plants			Cotton textile enterprises		
	I	II	III	I	II	III
Enterprise territory	104	115	107	103	109	128
Building construction	115	126	224	120	122	138
Production shops	113	130	158	113	113	140
Auxiliary shops	94	98	99	102	123	116
Service and personnel housing	119	164	228	159	125	175

There is no direct dependence between the growth of fixed capital and of a plant's territory. Operating enterprises (especially old ones) are no longer located at the edge of cities -- city construction has solidly taken over nearby territories and it is almost impossible for enterprises to increase their area. If, as an illustration, we were to take Moscow plants which as a result of the growth of the city now find themselves not at the edge, but within the city territory, we would see with what difficulty Moscow enterprises stretch their borders: in twelve years the machine tool building plant imeni Orozhonikidze increased its area by 2.7 percent, the polishing machine tools plant by 10.7 percent, while during the same period the "Stankoliniya," "Krasnyy Proletariy," and the "Stankoagregat" Machine Tool Building Plants decreased their territories by 2-15 percent. The area of an inner-city plant can be increased only through the construction of a branch on another territory (practically, this is a form of new construction) or by means of tearing down city structures of little value on nearby territories. Only plants which have not yet gotten into the close surroundings of residential quarters can increase their areas with the least difficulties. Most frequently inner-city industrial enterprises seek space reserves on their own territories. This is an efficient way of using the universal means of production -- land: in all of the groups of enterprises the increase in additional building areas is ahead of the increase 'n plant areas (Table 1). It is obvious that all of the enterprises found free territories for siting new production buildings or building additions to existing structures. The fact that industrial enterprises possess territory reserves is witnessed by the coefficient of construction which has a very large amplitude of fluctuations. Thus, for the machine tool building plants this indicator changed from .03 to .60; and for approximately 80 percent of the textile enterprises in 1973 it did not exceed .4. Of course, enterprises which have 10 to 20 times less area with buildings than the maximum construction of areas which has occurred at certain plants are capable of developing a large construction program of new buildings and structures without additional territory. In addition, free areas develop at enterprises after the demolition of dilapidated buildings and structures, which is also a definite area reserve for siting new buildings. It is precisely this which can explain the fact that in a large group of factories the area built up with production buildings increased by 23 percent, while the construction coefficient is only 4.

An analysis of the relationship between an increase in fixed capital and in construction areas for the groups of plants leads to the conclusion that both phenomena are quite closely connected: the largest growth of area can be found at plants whose fixed capital increased 3 to 7 times (Table 1). This important dependence makes it possible to assert that an intensive growth of fixed capital has the character of an expansion of the enterprise.

The increase in production areas develops differently in each group of enterprises. The production shop and service and personnel housing areas expanded considerably more in the last two groups of enterprises. The larger the increase in fixed capital and, correspondingly, the degree of renewal, the more substantial the growth of construction areas and new production shop and service and personnel housing areas.

Apparently there is a direct dependece of the physical indicators adopted in the calculations (plant area and construction of production buildings) on the amount of expenditures for construction and installation work of the group of enterprises. The basic production equipment pool is also renewed in its own way in the groups of enterprises. During the years 1965-1976 it occurred extremely unevenly at the individual machine tool building enterprises: from 3 to 190 percent. However, the diversity in the rates was subject to one basic factor. The more intensively fixed capital grew at operating enterprises, the larger the number of machine tools that were received at these plants (Table 2).

Table 2 (in percent)

	Group of Machine Tool Building Plants		
	I	II	III
Enterprises fixed capital	200	224	400
Metal-cutting machine tool pool	115	122	151

The character of the changes in fixed capital in the groups of enterprises is especially graphic in a comparison of the growth of fixed capital and the pool of leading production equipment.

In the first group of enterprises the gap between the fixed capital growth rates and those of the metal-cutting machine tool pool is equal to only 85 points, in the second -- 102, and in the third -- 149. The negligible drop in the indicators of the first group is explained by the fact that in this group of plants there was a preferential renewal of existing capital by means of the replacement of old equipment, the installation of additional machine tools, negligible changes in the layout of production areas, and small building additions to existing shops. Expenditures were directed basically into the active part of fixed capital. The proportion of expenditures for equipment in the overall capital investments in this group of plants is large. Actual construction in the form of the building of large, new structures had a negligible place.

In the subsequent groups the gap between the indicators grows substantially. It is clear that with an increase in the expenditures for the renewal of fixed capital an increasingly large part is assigned to the passive part.

A similar picture developed in 1955-1973 at the enterprises of the cotton textile industry (Table 3).

Table 3 (in percent)

	Group of Cotton Textile Industry Enterprises		
	I	II	III
Value of Buildings and Structures	243	485	778
Value of Power and Working Machines	196	318	511
Gap in Growth Rates (Points)	47	163	267

At the enterprises of the first group with the smallest average annual fixed capital growth rate there was a preferential renewal of equipment, "bottlenecks" opened up, and existing structures were partly changed through new layout and building additions. This is characteristic for the reequipping of operating enterprises. During the period being analyzed the second group of enterprises reconstructed their fixed capital, substantially changing both the passive and active elements of the means of labor. Old buildings and structures were fundamentally altered here, and dilapidated or obsolete structures were torn down. In addition, quite a lot of operating means of labor were decommissioned, which had important influence on the value of fixed capital and on the amount of production capacities after reconstruction.

The large-scale commissioning of new capacities with a renewal of both the active and the passive parts of the means of labor was characteristic for planned expansion which occurred in connection with a high average annual fixed capital growth rate. Expansion is accompanied by a larger increase in production areas than reconstruction. Expenditures for the passive elements of fixed capital are also highest here.

During the period being analyzed both at the machine tool plants and at the cotton textile factories periods of an active renewal of fixed capital alternated with years of very moderate expenditures for it. For this reason, it cannot be said that, for example, the enterprises of the last group renewed the means of labor only in the form of expansion, of the middle group -- in the form of reconstruction, and so forth. An evaluation of the dependence between the growth rates and the character of the renewal of fixed capital makes it possible to state that during a rapid period of renewal (and such periods predominate over slow renewal) the means of labor of the group of enterprises being analyzed were renewed primarily in the form of reconstruction or expansion.

There is a main characteristic which is at the basis of the above classification of types of reconstruction -- the degree of the renewal of fixed capital of enterprises which influences the intensity of a change in the active and passive groups of functioning means of labor.

The establishment of a dependence between the degree and character of the renewal of operating fixed capital and the singling out of a basic classification characteristic -- the growth of fixed capital -- makes it possible to approach the solution of a difficult problem facing planning agencies. At present there is a qualitative description of types of reconstruction which is set forth in the 6 February 1975 Instructions of Gosplan USSR and Gosstroy USSR. This is only the first stage of planning types of reconstruction. Their quantitative limits must also be defined.

A correct singling out of types of reconstruction is necessary for forming the most effective directions of expenditures for operating production. Each type of reconstruction is different not only in its results, but also in the expenditures necessary for it, which can be seen in an analysis of the growth of production, of a rise in the level of capital intensiveness, and a change in profits and in the profitability indicator at the same enterprises.

During the 12 years in the groups of machine tool building plants (or by types of reconstruction) the growth in the production of output developed disproportionately to the increase in the amount of functioning fixed capital. This is explained by the special characteristics of the renewal of fixed capital with each type of reconstruction (Table 4).

Table 4 (in percent)

	Type of Reconstruction at Machine Tool Building Plants		
	I	II	III
Average Growth of Fixed Capital	200	224	400
Increase in the Production of Output	156	132	148
Capital Intensiveness of an Increase in Output in Percentage of First type of Reconstruction	100	195	174

As a result of the reequipping of plants expenditures are directed primarily into the active elements of the means of labor and most of the increase in fixed capital produces a pure increase in production capacities. With the reconstruction and expansion of plants a substantial amount of the capital investments is directed to the creation of new production areas, expenditures for the active part decrease substantially, and fixed capital grows more rapidly than capacities, which also influences the amount of the capital intensiveness of an increase in output.

The special characteristics of the renewal of operating fixed capital by types of reconstruction change the quantitative and qualitative levels at which production is supplied with the means of labor, the expenditures of live and emobied labor (with respect to the expenditure of fixed capital), labor productivity, and an increase in the amount of production. The different changes in the complex of the leading indicators by types of reconstruction had an influence on production costs and the level of profits and profitability in all of the groups of enterprises (Table 5).

Table 5 (in percent)

Type of Renewal	Machine Tool Building Plants			Cotton Textile Industry Enterprises	
	Specific Capital Intensiveness of an Increase in Output, in percentage of the first type	Increase in Profits during 1965-1976	Increase in Profitability during 1965-1976	Specific Capital Intensiveness of an increase in Output, in percentage of the first type	Increase in Expenditures per ruble of Commodity output During 1955-1973
I	100	157	122	100	100
II	195	153	116	187	143
III	174	185	131	117	127

A determination of types of renewal and of their dependency upon a growth in fixed capital makes it possible to fix a change in capital intensiveness in connection with the dynamics of functioning means of labor. It can by seen from Table 5 that the cheapest increase in a unit of output is characteristic for the first and third types of renewal. Moreover, this dependency is not connected with the specific features of the individual branches of industry. Fluctuations in decreases in the cost of production with reequipping, reconstruction, and expansion depend above all upon the scope of the introduction of new equipment and production technology. With the third type of renewal the possibility is created for a broad and consitent introduction of new equipment, which produced a palapable increase in profits and profitability in machine tool building; the second type of renewal provides the smallest economy of current production costs in the branches under analysis.

It is clear that the renewal of operating fixed capital in industry can and needs to be regulated by generalizing all of the modifications of a change in operating fixed capital and finding general laws in the character of the renewal of fixed capital by individual types.

It would be difficult to over-estimate the results of this kind of regulation, since the character of changes in fixed capital forms the amount and structure of capital investments connected with reconstruction, while the character of changes in the means of labor directly influences expenditures of live and embodied labor in production. Correspondingly, each type of renewal has its own effectiveness. The discovery of these laws is hindered by the fact that there exists a traditional approach to studying the renewal of an enterprise's operating fixed capital: strong attention is given to equipment, although an aggregate of interconnected and interdetermined elements of the means of labor functions at the industrial enterprise. The laws of the renewal of an operating enterprise cannot be reliably modeled by pulling just one group out of the total aggregate of its fixed capital. A systems approach is necessary.

With centralized planning there is no point in working on an analysis of renewal variants for each concrete plant -- there are several hundred of them in a branch. For this reason, it is necessary to determine an average result from capital investments in operating production, basing oneself on the growth rates of fixed capital and on renewal types, and to select the most effective one.

The singling out of types of reconstruction in relation to the growth rates of fixed capital widens the possibilities for planning the renewal of operating means of labor. It is clear that with an increase in the average annual or five-year fixed capital growth rates at the operating enterprises of a branch the capital intensiveness of an increased capacities and the amount of current production costs change. Consequently, by taking the optimal fixed capital growth rates as a basis it is possible to obtain the best results with the smallest expenditures. It becomes possible to plan construction (reconstruction) and operating production as a single whole, which is stipulated in the decree of the CC CPSU and USSR Council of Ministers On Improving the Economic Mechanism.

Moreover, by discovering the distinctive characteristics of a renewal of functioning means of labor by types of reconstruction it is possible to create a scientifically substantiated normative base for planning decisions and construction work at operating enterprises, which is also necessary for improving the current and long-term planning of expenditures for operating production.

In planning the renewal of fixed capital it is useful to proceed from the fact that this process is carried out constantly and uninterruptedly. There is practically not a single enterprise which does not increase it's own fixed capital (this has been confirmed by an analysis of actual materials from the branches of industry). The growth rate is very high -- approximately 130-500 percent in ten years. In industry there is not simply a concentration of production at operating enterprises, but a constant renewal of them. Plans for reconstruction (expansion or reequipping) establish only an individual stage of this process. It is natural that a consideration of this very important characteristic raises the question of the long-term planning of the renewal of operating fixed capital.

It is emphasized in the 12 July 1979 decree of the CC CPSU and USSR Council of Ministers that the selection of the most effective ways of achieving high final economic results and an efficient combination of long-term and current plans are highly important directions in improving all of planning work.

In order to reduce the cost and accelerate the renewal of operating fixed capital future reconstruction should be planned when a new enterprise is planned. It should be set up in such a way that it will be possible to replace equipment many times without altering production structures and to rapidly expand and renew communications, transportation equipment, and warehouses. In addition, it is necessary to take the developed standard technical and economic parameters for equipment and structures as a basis so that newly created equipment fits into the accepted dimensions of industrial buildings. This kind of approach will make it easier to work out standard enterprise reconstruction plans.

As for already functioning enterprises, it would be advisable to work out for them a long-term reconstruction plan for the next five-year period (or ten-year period) that takes account of the appearance of new types of equipment, and of the possibilities of changes in output and in the fixed capital wear and tear indicators. Of course, in selecting the most effective type of renewal it is important to base oneself on the developed dependency between the depth and character of the renewal of functioning means of labor in order to get a correct substantiation of fixed capital growth rates.

An improvement of the planning of fixed capital renewal will make it possible to determine effective directions for capital investments in operating production rapidly and validly, will increase the realistic nature of long-term calculations, and will help to increase the return on capital expenditures for the reconstruction, expansion, and reequipping of industrial facilities.

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ECONOMISTS, OFFICIALS COMMENT ON URALS AREA DEVELOPMENT

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[Article: "Problems of the Overall Development of the Productive Forces of the Urals"]

[Text] It is stated in the decree of the CC CPSU and USSR Council of Ministers "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and the Quality of Work" that it is necessary to work out special-purpose overall development programs for individual regions and territorial-production complexes. Increasing attention is being devoted to the long-term development of the economies of the union republics and economic regions. The Urals economic region occupies an especial place among them. It includes Kurganskaya, Orenburgskaya, Permskaya, Sverdlovskaya, and Chelyabinskaya Oblasts and the Udmurt ASSR. Located between the European and Asiatic parts of the USSR, the Urals unites them, as it were, into a single whole and serves as the base for the industrialization of the Eastern areas; it is also closely connected with other economic regions. The Urals' earth is rich in various mineral and raw material resources. More than half of our potassium is mined here and a substantial part of our metals is produced here. The great role of this region in the single economic complex of our country is clear.

The existence in the Urals economic region of a powerful production apparatus, highly skilled cadres, a developed network of scientific research institutions, rich and diverse raw materials resources, and an advantageous economic geographic situation determine the great possibilities for the development of the productive forces of the Urals over the long term.

The institutes of the Urals Scientific Center of the USSR Academy of Sciences have prepared fundamental material on the development of the productive forces of the Urals over the long term which was discussed at an all-union conference in Sverdlovsk which was organized by the Urals Scientific Center, the Commission for the Study of Productive Forces and of Natural Resources at the Presidium of the USSR Academy of

Sciences, the Council for the Study of the Productive Forces at Gosplan USSR, and the Central Economic Scientific Research Institute at Gosplan RSFSR. The problems of the development of the productive forces of the Urals which were raised attracted the attention of a wide circle of scientists, specialists, party leaders, and workers from central and local planning agencies. They were given the opportunity to express their opinions at a "round table" organized by the editors.

The Corresponding Member of the USSR Academy of Sciences and First Deputy Chairman of the Presidium of the Urals Scientific Center M. A. Sergeyev considered the basic directions of the economic and social development of the one of the country's largest regions. The Urals, he emphasized, specializes in the production of heavy industry output, producing a substantial proportion of our steel, rolled goods, ferrous metals, and steel pipes.

The Urals is a leading supplier of the output of heavy, transportation, mining, metallurgical, chemical, and energy machine building. While it possesses three percent of the territory and around six percent of the population of the USSR, the region occupies one of the leading places in the Russian Federation and in the country for the level of industrial production. The level of the territorial concentration of industrial production exceeds the all-union level by almost 3 times, while in its mining and plant section (Permskaya, Sverdlovskaya, Chelyabinskaya Oblasts) the figure is 3.5 times.

The specific nature of the economy of the Urals and its importance depend not only upon the dimensions of industry, but also upon its qualitative composition. Many types of output which determine the technical level of the country's production are produced only in the Urals. The output of Urals enterprises is exported on a wide scale.

An essential characteristic of the qualitative aspect of the region's economy is the fact that it has an important place in the production and redistribution of the country's national income and, consequently, it actively influences the establishment of the necessary proportions between the economic and social development of the country and the process of socialist expanded reproduction.

However, along with positive tendencies in economic and cultural development, there are negative phenomena in the Urals economic region (the branches of the social infrastructure are developing at inadequate rates, the provisioning of industry with raw materials and fuel is growing worse, the level of the overall use of mineral raw materials and timber is low, and others). In order to make fuller use of the potentialities and to weaken or eliminate the influence of individual negative factors it is necessary to take a number of social and economic measures which will promote the effective development of the economy of the Urals.

An improvement of the use of nature in the Urals whose production complex was formed historically on the basis of the mineral and raw materials resources existing here is a very important reserve for increasing production efficiency. However, recently, on account of lagging in geological surveying work and a slow increase in mining capacities the ore and coal supply situation has become more difficult. This has led to disproportions both in the country's branches of the economy and in the economy of the Urals. Thus, during the years 1965-1975 the production of iron increased by almost 1.5 times, while the extraction of commercial ore decreased by approximately 5 percent. The needs of the region's ferrous metallurgy for iron ore raw materials are now being met to a substantial extent by ores from the European part of the USSR (the Kursk magnetic anomaly and the Kola Peninsula) and from Kazakhstan (the Sokolov-Sarbaysk deposit). The expenditures for the transportation of the raw materials for metallurgical enterprises come to 500 million rubles a year.

A strengthening of the mineral and raw materials base of the region can, in our view, be carried out in several directions. In recent years positive results have been produced by a search for ore in the Central and South Urals and in the Zaural'ye at depths of more than 500 meters. According to the initial calculations of the "Uralgiprorud" Institute, the working of iron ores at the Goroblagodatskiy, Lebyazhinskiy, and Yestyuninskiy deposits at depths of 1200-1500 meters is profitable despite all cost increasing factors. The economic expediency of mining bauxites at the operating mines of the North Urals Bauxite Mine at a depth of 1500 meters has also been established.

The needs of the Urals' industry for raw materials may also be provided for through the overall use of minerals. From 20 to 45 valuable elements are concentrated in the ores of the ferrous and nonferrous metals which are mined in the region. However, the losses of valuable components are still large. A substantial amount of construction materials has piled up at industrial dumps. It is time to begin the secondary processing of the raw materials of the Urals.

Thus, the planned regulation and improvement of production relations in the field of the use of natural resources, a consideration of regional characteristics, and a rejection of the traditions which have developed are becoming important issues. The way to solve the problems of the overall exploitation of deposits is the organization of interbranch industrial associations, which will make it possible to eliminate narrow departmental views and disunity.

The need for fuel and energy resources is growing at rapid rates, while the proportion of local resources in the balance is decreasing every year. The future balance of the Urals economic region is characterized by an increase in the share of hard types of fuel basically on the basis of imported Ekibastuz and Kuznetsk coals.

The need of the Urals' economy for electric energy will be provided for in the future through the construction of powerful state regional electric power stations.

The basic place in the economy of the Urals is occupied by branches which determine scientific and technological progress: machine building, and the chemical and petrochemical industries. The specific nature of the machine building of the Urals consist in the fact that equipment for the leading branches of industry is created here: for the mining, metallurgical, energy, and chemical branches.

Many types of equipment are manufactured chiefly in the Urals. These are machines for drilling petroleum and gas wells with a depth of from 3 to 12 kilometers; quarry excavators with a shovel capacity of twelve-to one-hundred square meters and a crane length of 100 meters; continuous steel smelting installations, and others.

An agro-industrial complex has developed in the Urals. The region's agricultural output comes to 5 percent of the union production and 10 percent of the RSFSR production. However, agricultural production provides for the needs of the local population for only grain and potatoes.

The realization of the plan changes in the agricultural siting scheme and of measures to improve its specialization, provide for the needs of cities and industrial centers for agricultural output, and raise the level of the development of the agro-industrial complex will make it possible to better supply the population of the Urals with meat, milk, meat and dairy products, vegetables, potatoes, and output from the industrial processing of the above products. The problems of water supply which are becoming more acute each year as a result of the rapid growth of water use and the lagging in the development of water resources are of especial importance for the further development of the economy of the Urals. An increased share of the use of circulated water and also the accelerated construction of water reservoirs are the most important element in the solution of these problems.

intensive development of the natural, and raw material resources of the Urals, the accelerated process of urbanization, the rapid growth of industrial potential, and the piling up of production wastes -- all of this is urgently dictating the necessity for a planned overall regulation of the burden placed on the environment and of strengthened measures for environmental protection and improvement.

Investment policy has a number of special characteristics in the Urals. The chief direction of the reproduction of fixed capital here is the reconstruction and reequipping of operating enterprises. However, the proportion of capital expenditures directed into operating production is relatively large (around 70 percent). The proportion of investments in reconstruction and reequipping is still small.

In speaking about the Urals' future prospects the problem of labor resources should be considered. The territorial siting of the population and migration processes depend directly upon the development of the regional economic complex. Thus, during the first five-year plans when a tremendous industrial construction began in the Urals the population of the region increased at rapid rates. The post-war period was marked by new large-scale industrial construction, which also gave rise to a substantial influx of population. However, since the beginning of the 1960s a tendency toward a decrease both in absolute and in relative increments became sharply marked in the dynamics of the region's population size.

The problem of the efficient use of labor resources has to be approached from new positions, and not from those which developed previously. During the forthcoming five-year plans in a number of areas, including the Urals, there will be an absolute decrease in the size of the able-bodied population. The demographic situtation dictates the necessity for reducing and then eliminating unskilled labor of low productivity. This applies not only to the sphere of material production, but also to the non-production sphere.

The rational use of labor resources and an acceleration of the growth rates of the productivity of social labor are organically connected with the solution of social problems. This concerns both the city and the village. Of course, a rise in the standard of living is more a state problem than a regional one. But it must be considered that people live in concrete territories whose standards of living are different. Thus, as a relative analysis shows, the living conditions in the Urals are still lagging behind the high industrial level of the region's development. With regard to the consumption of a number of material and spiritual goods the Urals is behind most of the ten economic regions of the RSFSR. An improvement of the housing conditions of the population is a serious problem for the region.

It is necessary to speed up the solution of the problems of improving the territorial organization of production based on a scientifically substantiated economic regionalization plan. Proposals regarding a clarification of the existing borders of the Urals economic region which take account of its role in the all-union territorial division of labor are extremely important.

Doctor of Economic Sciences V. P. Mozhin, the Director of the Central Economic Scientific Research Institute of Gosplan RSFSR and a Corresponding Member of the All-Union Academy of Agricultural Sciences devoted his talk to the problems of the influence of the economy of the Urals on the development of the productive forces of the RFSFR. The Urals economic region, he noted, is one of the most developed and unique of the regions of the RSFSR which to a large extent determines the rates and proportions of the development of the republic's economy. The special economic geographic position of the Urals which serves as a "bridge" between Europe and Asia, the structure of its economy, the scope of the development of individual branches of specialization, and the existence of a developed transportation system have given rise to the fact that it is a major supplier of high quality output (machinery and equipment) both to the European areas and to the East.

The economy of the Urals is oriented primarily toward intensive ways of development which are expressed in a more rapid return on invested resources. This, although indirectly, in view of the varied structure of capital investments in different areas, is witnessed by the fact that while it occupies third place among the economic regions of the RSFSR for the share of the national income it produces, the Urals is in seventh place for its proportion of annual capital investments.

During the Ninth Five-Year Plan the increase in production in the Urals occurred to a large measure on the basis of the additional enlistment of labor power and fixed capital into production. However, the amounts of the decrease in the return on capital here are minimal (1 percent) as a result of the fact that with a level of labor productivity which is near to the average the increase in fixed capital in the region was the smallest -- 42 percent (50 percent for the RSFSR), and also thanks to the realization of a policy aimed at the reconstruction and reequipping of enterprises.

At the present time the following problems are becoming especially important: an improvement of the branch structure of the Urals' economic complex in order to improve interbranch and branch proportions, and also an improvement of the siting of the region's productive forces, in particular the formation and further development of territorial production complexes, especially the Orenburg one.

The metallurgical and machine building complex is a leading element in the industry of the Urals' economy. Its development should follow above all an improvement of the qualitative and cost indicators of the metals which are smelted on the basis of an improvement of technology. The reconstruction of the Magnitogorsk Metallurgical Combine has been begun, and the reconstruction of the Chelyabinsk, Nizhne-Tagil', and Orsk-Khalilov Plants is continuing. In order to solve the problem of iron ore raw material supplies there should be a forced expansion of the first Kachkanar and the construction of the second Kachkanar Mining Concentrating Combines, an acceleration of the construction of the Kacharsk Combine in Kustanayskaya Oblast, and the performance of preparatory work on developing the Velikhov deposit in neighboring Aktyubinskaya Oblast.

The task of the region's machine building during the forthcoming period is to master the production of fundamentally new machines and industrial equipment for the mining and petroleum extracting and petroleum refining industries, for atomic and fuel power engineering, and for low-waste and waste-free technologies and environmental protection. There will be an increase in the production of automation equipment and transportation machinery, particularly trucks and heavy tractors. The Kama area which, in addition to substantial stocks of chemical raw materials (magnesium-potassium salts, hydrocarbon raw materials, and limes), possesses substantial stocks of water will have a leading significance in the Urals chemical complex.

The further development of the timber and wood working complex of the Urals will be connected with the gradual rebasing of timber procurement and timber processing to the northern part of the region and with a rise in the level of the overall nature of the use of wood.

The Urals' construction materials industry will retain an important place in the all-union production of asbestos, cement, and products made of prefabricated ferro concrete. The production of the remaining types of construction material is supposed to rise to a level which will take care of local needs.

During the 11th and 12th Five-Year Plans the growth rates of agricultural production in the Urals will be at the level of the average republic rates, and the gross harvest of grain will increase. The basic and only way to develop the branch is a universal intensification of production.

The realization of the planned measures to develop and improve the Urals' economic complex given the increasing strain on the labor balance demands increased attention to the realization of the social program in order to make cadres permanent and raise the population's standard of living. It is planned that by the end of the 12th Five-Year Plan, as the result of the realization of the projected program of measures, the indicators for the provisioning of the inhabitants of the Urals with the basic types of cultural and everyday services will be similar to the average ones in the RSFSR. However, this will demand an increase of capital investments in the non-production sphere of no less than 2 to 2.5 times.

The key problems of the development of the Urals economic region which have been considered have a long-term character.

Academician A. G. Aganbegyan considered the basic problems of the economic development and economic relations of the Urals and Siberia. He singled out the common tendencies in the developmental prospects of these two regions: a rise in labor productivity, and an emphasis on the development of machine building as a factor in a labor saving economy; and the elimination of the disproportions which have arisen through a capital saving technical policy and the reorganization of construction.

A. G. Aganbegyan emphasized that in the near future there would be changes in the structure of capital investments: the proportion of them which is assigned for the development of the infrastructure, above all transportation, will sharply increase. The share of capital investments in the fuel and energy complex will also increase. At the same time, capital investments in the development of agriculture and the entire agro-industrial complex must not decrease. Changes are also becoming a technical policy -- in the direction of deepening the processing of raw materials, improving the quality of materials, and of a comprehensive economy of fuel and resources. All of this is orienting the economy toward intensive methods of development. It is necessary to have the corresponding planning, management, and stimulation.

The chief connection between Siberia and the Urals is supplying the Urals with fuel and electric energy. In this connection, the possibility of combining the resources of the Kuzbas and Kansk-Achinsk Coal Basins is of interest. In the opinion of the Institute of Economics and the OOP [expansion unknown] of the Siberian Branch of the USSR Academy of Sciences, it would be expedient to import Kuznetsk coals into the Urals, but a coal-carrying road is needed for this. In the future electric energy from Siberia can also be transmitted to the Urals. In the future the Urals will become a region with the highest supplies of energy and fuel if an efficient combination of the use of the coal of the Kuzbas, the gas of the Northern Tyumen', and the electric energy of Siberia is achieved.

The prospects for the growth of the productive forces of the Urals economic region were considered at the "round table" in connection with the development of adjoining areas. In particular, the Chairman of the Presidium of the Komi Branch of the USSR Academy of Sciences, Doctor of Economic Sciences V. P. Podoplelov considered the problems of the formation of the Timan-Pechorsk territorial production complex and its economic relations with the Urals.

The Timan-Pechorsk territorial production complex will be developed on the territory of the Komi ASSR and the Nenentsk Autonomous District of Arkhangel'skaya Oblast. The economic expediency of its creation is based on its diversity of its natural resources and favorable economic geographic conditions.

The area possesses stocks of fuel and energy resources, particularly the coals of the Pechorsk Basin; but it's possible consumers have not yet been fully determined. The Urals economic region could occupy its special place among them. Special studies are needed to substantiate this kind of economic decision.

Special consideration should be given to the mineral and raw material resources of the North Urals which in the future should play a substantial role in the development and formation of the structure of the complex. The earth of the North Urals is rich in minerals, including non-metallic minerals and Podelochnoye and Kamnesamotsvdnoye raw materials. The development of these resources is an inter-regional problem. The united efforts and resources of scientific and production geological organizations are needed for an intensification of the geological study of this territory of the Northern Urals.

Professor and Doctor of Economic Sciences M.I. Takumbetov, the Chief of the Department of Economic Research at the Bahkir Branch of the USSR Academy of Sciences, emphasized that Bashkiriya is connected with the Urals economic region by many-sided and intensive economic relations. Bashkiriya is the basic supplier for the Urals oblasts of diesel fuel, kerosene, boiler fuel, industrial lubricants, and also diverse petrochemical and chemical output.

The realization of the program for the development of petroleum refining goes beyond the framework of branches and requires an overall approach. The most difficult problem is the exportation of clear petroleum products, particularly in the direction of the Urals and Siberia. The branch's progress is being held back by limited transportation reserves. During the 11th Five-Year Plan provision should be made for the construction of pipelines to the area of Sverdlovsk. At the same time, an expansion of the carrying capacity of the Belaya River for exporting petroleum products by a tanker fleet with a large unit capacity is becoming an urgent task.

The Director of the Scientific Research Economics Institute of Planning and Norms at Gosplan at the Kazakh SSR, Doctor of Economic Sciences E. A. Turkebayev, considered the problems of improving economic relations between the Urals and Kazakhstan. The Urals has the largest place in the inter-regional output exchange of the Kazakhstan economic region; it accounts for 32 percent of all of the exported cargoes. The Urals receives 72 percent of the coal exported from the republic, including energy coal (chiefly from the Ekibastuz Basin) for the Troitskaya, Reftinskaya, and other state regional hydroelectrical power stations of the Urals. Most of the iron ore from Kazakhstan goes to the enterprises of the Urals. It is planned to substantially increase deliveries of fire resistant materials from the "Kazogneupor" Plant which is being built in the city of Rudnyy. Grain from the virgin lands of the republic and other foods are also sent to the Urals.

In its turn, the Urals exercises an important influence on the industrial development of Kazakhstan, supplying it with petroleum products, ferrous metals, high quality fire resistant and mineral construction materials, and especially machine building output (equipment, machine tools, production equipment, and so forth).

In the Kazakh SSR the extraction of coal at the Ekibastuz deposit will increase at rapid rates during the 10th, 11th, and 12th Five-Year Plans. It is expected that the exportation of energy coals from the Kazakh SSR to the Urals will increase.

In order to cover the shortage of fuel it would be advisable to work the coal deposit of the Turgay Brown Coal Basin whose coal shipping distance to the Urals is 800 to 900 kilometers shorter than the Ekibastuz Basin.

However, the relationships between the Urals and Kazakhstan with respect to cooperation and territorial specialization in the development of machine building are still inadequate. In the opinion of economists, a more extensive creation in the future of inter-regional machine building complexes which are closely intercoordinated would make good sense.

Agro-industrial integration is also being assigned an important place in the economic relationships between Kazakhstan and the Urals. Agricultural production to raise very valuable heat-loving crops and irrigation crops is widely developed in the republic. However, the problem of water resources is an acute one here. The development of water resources construction and the exploitation of new irrigation lands will be closely connected in the near future in the Western areas of Kazakhstan with the effective use of the water resources of the Urals and the construction of the Volga-Urals canal whose importance is becoming much greater in connection with the development of commercial fishing in the Caspian Basin.

A great deal of attention was devoted to territorial problems at the "round table." The speeches of party leaders, local planning agency workers, and scientists concerned an overall approach to the development of the economy of the territory and the necessity for combining branch and territorial principles. Questions were raised about ensuring balance in the development of a territory's economy, expanding the social infra-structure, and eliminating narrow departmentalism and disunity in the solution of economic problems.

V. P. Tolmachev, the Chief of the Section for Summary Long-Term and Current Plans of Gosplan RSFSR, and Candidate of Economic Sciences A. M. Kipriyanov, the Chairman of the Sverdlovskaya Oblast Planning Commission, cited a number of examples of an overall approach by ministries and departments to the problems of production. Thus, the "Iskra" Plant of the Ministry of Electrical Engineering Industry has carried out a substantial program of social and economic development in the settlement of Novoutkinskoye: good housing and everyday conditions have been created for the inhabitants of the settlement, reequipping is in progress at the plant, and working conditions are being improved. A branch of electrical engineering tekhnikum is in operation in the settlement. All of this is making it possible to keep skilled cadres at the enterprise. However, there are also opposite examples. Thus, in 1973 a decision was made to create a large branch of the Uralhymash in the city of Degtyarsk and an area was reserved for the construction. However, the execution of this decision has been delayed. Workers from Degtyarsk are transported to work in Sverdlovsk over a distance of more than 50 kilometers.

Concern about the influence of industry on the environment was expressed by the Second Secretary of the Chelyabinskaya Obkom L. A. Il'ichev. He noted that the felling of forests in Chelyabinskaya Oblast without taking proper account of the possibility of restoring them may result in serious water supply consequences both for Chelyabinskaya and for neighboring oblasts. Scientific work and the assistance of scientists is necessary to create effective methods of treating industrial discharges.

The secretary of the Sverdlovskaya Obkom V. A. Zhitinev emphasized the role of science in solving the economic and social problems of the Urals. It is upon scientists that the validity of a forecast of the development of the region's productive forces and of proposals on balancing the work of all of the elements of its economy depends.

The Second Secretary of the Kurganskaya Obkom P. V. Pavlov said that despite favorable conditions for the development of the oblast, it remains one of the least industriallv developed. The reasons are an insufficient allocation of capital investments, the low level of the production and social infra-structures, a shortage of water resources, and others.

M. N. Stepanov, the Chief of the Perm' Laboratory of Overall Economic Research of the Institute of Economics of the Urals Scientific Center, touched upon a number of problems of the economy of Permskaya Oblast. He emphasized that the problems of the overall development of the Verkhne-Kamsk potassium deposit in order to increase the extraction of potassium fertilizers and make by-product use of salt wastes are becoming especially important. The oblast is faced with large tasks in providing energy supplies for the Urals industrial complex. The problems of the development of the oblast's agro-industrial complex demand an urgent solution.

V. V. Vladimirov, the Deputy Chairman of the Orenburgskaya Oblast Planning Agency, and V. P. Krylov the Chief of the Orenburg Laboratory of Economic Research of the Institue of Economics of the Urals Scientific Center of the USSR Academy of Sciences revealed the prospects for the economic development of Orenburgskaya Oblast. The oblast has deposits of natural gas, petroleum, ores, mineral construction materials, and other minerals. The composition of many of the deposits has an overall character and the extraction of by-product components would greatly increase the effectiveness of the use of the deposits. Large stocks of secondary raw materials which represent not only valuable construction material but also a future source for obtaining metals have been piled up on the basis of existing mining and metallurgical enterprises. Supplying it with water resources is one of the necessary conditions for the further development of the oblast's economy.

O. A. Pereleshina, the Chief of the Complexes Sector of the Urals Council for the Study of Productive Forces, considered the problem of the formation of the Orenburg territorial-production complex. As a rule, she said, the basis for the formation of the territorial-production complex is the discovery of new deposits of mineral resources on whose basis enterprises in various branches are arising. In addition to their development, in each complex there is the task of the creation of supplementary and service productions.

The Orenburg (multi-component gas condensate) deposit was mastered in less than eight years. At the present time approximately every tenth cubic meter of gas mined in the country is from Orenburg. In addition to the delivery of gas and gas condensate to the Povlozh'ye and Center, Orenburg gas goes to the socialist countries through the "Soyuz" Transportation System. With the creation of the gas refining and gas-chemical industry in Orenburzh'ye a number of difficult scientific and technical problems have been solved for the first time in domestic practice.

A deepened processing of gas and the full extraction and use of all of its components is the task of the next stage of the formation of the complex.

Calculations also confirm the expediency of organizing the production of protein-vitamin feeds from hydrocarbons within the complex. By means of curtailing the sowing of feed crops it would be possible to increase the sowing of the famous strong and hard varieties of Orenburg wheat.

Doctor of Economic Sciences V. M. Andrianov (Central Economics Scientific Research Institute at Gosplan RSFSR) emphasized the necessity for working out inter-branch programs, particularly for the Urals machine building and metallurgical complex. An improvement of the relationships between these branches of the area on the basis of improving the quality and increasing the degree of the readiness of ferrous metallurgy output for consumption is of great national economic importance. The reconstruction of the branch's enterprises has to be the material basis for raising the technical level of ferrous metallurgy. The task consists in raising the equipment level of ferrous metallurgy on the basis of increasing the share of resources which are consumed by the branch. This will have a progressive influence on the structure of machine building and will make it possible to sharply reduce the consumption of resources per unit of output.

O. K. Cheplayeva, a Sector Chief at the Central Economic Scientific Research Institute at Gosplan RSFSR, noted that at the current stage the problem of the overall economic and social development of the productive forces of oblasts and ASSRs is becoming increasingly important. Its solution presupposes ensuring optimal proportions in the levels and dimensions of the development both of the basic elements of the economic mechanism and within them.

Frequently overall development is made difficult because of a lack of correspondence between the interests of individual departments and ministries and the tasks of the formation of territorial-production complexes. The most typical shortcoming of this kind is the lack of an overall approach in the processing of natural raw materials. This is characteristic, in particular, for the use of the resources of the Orenburg gas condensate deposit. On account of the lack of correspondence of the interests of individual departments a delay is occurring in making a decision concerning the overall processing of gas condensate and the creation of necessary capacities for this. As a result, for many years now Orenburg gas which contains a large quantity of valuable components has been used exclusively for heating purposes, and a substantial amount of the accompanying fractions are lost irretrievably in gas jets. Similar problems are arising in the process of the formation of the Verkhne-Kamsk territorial-production complex.

Another result of the narrowly departmental approach is insufficient attention to the development of production and social infra-structures.

This has a negative effect upon cadre supplies and the rhythm of production processes and, in the final analysis, leads to a failure to meet planned periods for the commissioning and mastering of production capacities.

In this connection, it would be advisable to concentrate the financial and material resources which are allocated for the development of the social infrastructure and of certain facilities of the production infrastructure at the local Soviets of People's Deputies which, in accordance with the USSR Constitution, are assigned a large role in planning the development of the local economies of oblasts.

Doctor of Economic Sciences A. G. Granberg, the Deputy Director of the Institute of Economics and the OPP [expansion unknown] of the Siberian Branch of the USSR Academy of Sciences, devoted his address to the problems of the development of an individual region from the point of view of national economic efficiency. He considered the results of the use of an optimization inter-regional inter-branch model in order to study the possible variants of the rates and proportions of developments of large regions. Calculations for this model which have been performed in the Institute of Economics and the OPP make it possible to determine the basic indicators for all of the country's large regions. Such calculations have already been performed for Siberia. A. G. Granberg made a suggestion concerning cooperation between the Urals Scientific Center and the Institute of Economics and the OPP in the field of the use of this model for determining the long-term directions of the development of the economy of the Urals, since common tendencies of economic development are characteristic for Siberia and the Urals.

It can be said that all of the participants at the "round table" emphasized the necessity for an accelerated solution of social and everyday problems (a better supply for the inhabitants of the Urals and adjoining areas of housing, kindergartens, and medical and cultural and educational institutions), and also of the problems of making cadres permanent and increasing their qualifications.

Doctor of Economic Sciences V. P. Chichkanov, the Director of the Institute of Economics of the Far Eastern Scientific Center of the USSR Academy of Sciences, characterized the important changes in the social sphere which have occurred in the Urals by the following indicators. In a decade, from 1965 through 1975, housing for the urban population of the Urals economic region increased (per person) from 9.8 to 12.8 square meters. Per capita retail commodity turnover in state and cooperative trade, including public catering, increased from 465 to 481 rubles; the amount of domestic services increased from 8 to 24 rubles. Sales areas in stores per 1,000 people increased from 109 to

162 square meters. The number of inhabitants per seat in public catering enterprises decreased from 32 to 17. The supply for the population of doctors in all specialties per 10,000 people increased from 20 to 29, middle medical personnel -- from 75 to 104, and hospital beds -- from 101 to 127.

In the last two years the scientific institutions of the Urals have prepared an "Overall Program for the Accelerated Growth of Labor Productivity in Industry, Construction, and Transportation and for the Efficient Use of Labor Resources of Sverdlovskaya Oblast During the Tenth Five-Year Plan and the Years 1981-1985." The development of the social infra-structure is considered in it in coordination with the solution of production problems.

The problem of the sources and forms of financing the development of the social infra-structure requires examination. At the present time a part of the resources for this is allocated by local agencies directly from the state budget, while the other part comes from the share participation of branch ministries and departments in the construction of facilities. Thus, during the years 1975-1971 the share of the union and union-republic ministries and departments in the total amount of investments came to the following in the RSFSR: housing construction -- approximately 60 percent, the construction of children's preschool institutions -- around 70 percent, and the construction of hospitals and polyclinics -- 40 to 45 percent. The existence of several sounces of financing leads to the scattering of resources among numerous organizations, and to the creation of small capacity construction organizations. A departmental approach in which each one builds only "his own" engenders significant disproportions in the development of the economies of territorial units within a region.

In the opinion of V. P. Chichkanov, resources for the development and improvement of the social infra-structure have to be concentrated under a single authority and it would be more advisable to allocate them as specially designated to the local Soviets. This would create the most favorable conditions for combining the interests of a territory and a branch. With a single authority allocated resources would be used in accordance with a scientifically substantiated plan for creating a complex of optimal living conditions for all groups of the population.

The problems of the long-term development of the productive forces of the Urals are directly connected with the problems of transportation. Their regional aspect was illuminated by A. P. Chervyakev (Institute of Economics of the Urals Scientific Center of the USSR Academy of Sciences).

The level of the productive forces of the Urals economic region and its economic position have given rise to powerful economic transportation relations; moreover, railroads are the chief type of communications here. Coal (37 percent) and ore (22 percent) occupy an important place in imports. The basic external relations for cargo shipments are carried out with areas adjoining the Urals which account for 40 percent of the exported cargoes and more than 70 percent of the imported ones. Two-thirds of the cargoes which are exported from the region are sent to the West of the country. Two-fifths of the imports come from the Western areas, and three-fifths from the Eastern areas.

According to the calculations of the Institute of Economics of the Urals Scientific Center of the USSR Academy of Sciences, in the future shipments will grow more rapidly in the Urals than on the average in the country. In recent years certain negative phenomena have been occurring in the work of the area's single transportation system as a result of which, for example, railroad transport at a number of sectors has begun to operate with excessive strains. Motor vehicle and river transport are developing at inadequate rates. In order to develop the natural resources of the Urals North (it includes the North, Pripolar, and Polar Urals, and also the areas adjoining this part of the Urals from the West and East) it is necessary to construct the Urals-Pechorsk Railroad.

Other types of transportation will also be developed in the future -- motor vehicle and pipeline. In addition to the construction of new pipelines connecting Western Siberia with the center of the country, the pumping of coal through pipes from the East to the West and of gravel from the Urals to the East will have to be mastered. In the Urals, as in other areas of the country, wide use will be made of fundamentally new types of transportation, including ships on air cushions and pneumatic-container pipeline transportation.

In summarizing the results of the "round table" discussion of the prospects for the development of the Urals economic region, the chief specialist of the division of territorial planning and the siting of the productive forces of Gosplan USSR V. I. Samoshkin noted that the further development of the region as a most important industrial base of the country requires the solution of a number of important problems as early as the next few years. They include, first of all, the problems of strengthening the raw material base of metallurgy, the optimization of the region's fuel and energy complex, an improvement of the region's production and social infra-structures, environmental protection, and an improvement of its transportation system.

The scientific organizations of the Urals can make an important contribution to the solution of these problems. Proposals concerning the development of a long-term special purpose overall program for the economic and social development of the Urals are of great interest. The composition of this program is becoming very important in the light of the realization of the decree of the CC CPSU and USSR Council of Ministers "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and the Quality of Work." The composition of an overall program will make it possible to increase the validity of social and economic development plans for the Urals and to discover ways of eliminating the disproportions which are holding back its accelerated development.

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